Journal of the

AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XV, No. 6
CONSECUTIVE No. 11

Practical Pharmacy Edition

Committee on Publications
DON E. FRANCKE, Chairman
WALTER M. CHASE
ROBERT P. FISCHELIS
F. ROYCE FRANZONI
HUGO H. SCHAEFER

•

Editor
ROBERT P. FISCHELIS

Associate Editor
SAMUEL W. GOLDSTEIN

Assistant Editor
ROBERT I. BISCHOFF

Staff Associates
GEORGE B. GRIFFENHAGEN
HELEN O. NICOL
GLORIA NIEMEYER
JUSTIN L. POWERS

Advertising and Circulation
FELIX B. GORRELL

•

Address all Communications Regarding Advertising to the Journal of the American Pharmaceutical Association, 2215 Constitution Ave., Washington 7, D. C.

JUNE, 1954

TABLE OF CONTENTS

FEATURES—

Straight from Headquarters 342
Tentative Program, A.PH.A. Convention 344
Factors Affecting the Choice of Suspending Agents in Pharmaceuticals, by Paul W. Gerding and Glen J. Sperandio 356
Some Aspects of Radioisotope Therapy of Interest to Pharmacists, by G. B. Hutchinson 360
Accidental Poisoning 364
Early American Pharmacies, by George B. Griffenhagen 368

DEPARTMENTS—

A.PH.A. Branches 378
A.PH.A. Officials 323
Briefly Noted 382
FDA Legal Actions 330
Hospital Pharmacy 374
Letters 323
National Defense and Security 328
New A.PH.A. Members 335
New and Nonofficial Remedies 334
New Prescription Products 336
Prescription Information Service 326
Recent Progress in Medicine 331
Typical Days 366

Copyright, 1954
American Pharmaceutical Association
2215 Constitution Ave., N. W.
Washington 7, D. C.

℞ information service

Members of the American Pharmaceutical Association are invited to submit their professional problems to The Journal, 2215 Constitution Ave., N. W., Washington 7, D. C., giving all pertinent details in your first letter.

Hydrocortone 1% Ointment

How should the following prescription be filled?

℞: *Hydrocortone 1% in Cetyl emulsion base.*

Sig.: Apply thinly to treated areas t.i.d.—M. M. H., Rochester, Minn.

Hydrocortone and Hydrocortone acetate are not currently available in bulk form for compounding purposes.

Your decision to request the physician's permission to dispense Hydrocortone 1% Topical Ointment is proper; although the base contains zinc stearate 6.3, polyethylene glycols 56, propylene glycol 30.7, and water 4.5 per cent.

If the physician insists upon a cetyl emulsion base, the 2.5 per cent Hydrocortone ointment might be diluted with that type of base. Such a base containing cetyl styryl alcohol, sodium lauryl sulfate, petrolatum and liquid petrolatum was used in an ointment of Hydrocortone reported by L. R. McCorriston, *Canadian Med. Assoc. J.*, **70**, 59(1954). Another formula contains:

Cetyl alcohol	25
Carbowax 1500	25
Sodium lauryl sulfate	1
Water	49

Heat the alcohol and Carbowax to 70° C., dissolve the sodium lauryl sulfate in the water at 70° C., mix the two phases and stir until congealed. Use a mechanical stirrer only if it can be adjusted to a slow speed; otherwise the phases might separate.

Actinomycin

Who makes Actinomycin, and is it available commercially?—M. T., Washington, D. C.

Actinomycin is an antibiotic that was obtained by culture of Actinomycetes by Waksman and Tishler. The substance was patented by Merck & Co., but was found to be too toxic for internal human therapy. It is not commercially available at present.

Sodium Para-aminobenzoate Solubility

The following note was received from E. E. Farhi, Beyrouth, Lebanon, (A.PH.A. member), in reference to a note in THIS JOURNAL, **15**, *10(Jan., 1954) on the solubility of sodium p-aminobenzoate.*

When preparing sodium *p*-aminobenzoate by reaction of calculated quantities of the free acid and sodium carbonate, a 20 or 25% solution cannot be obtained. The reason might be that the salt of PABA is available commercially as hydrated crystals, and this water is not accounted for in the theoretical equation of the PABA action on sodium carbonate. A satisfactory salt can be prepared as follows: the prepared salt of PABA is mixed with sufficient distilled water to obtain a complete solution, which is filtered, treated with activated charcoal if necessary, filtered again after 24 hours, and concentrated by heating gently. This solution is then left in a cool place (e. g., in a refrigerator), and after a short while sodium PABA deposits as white or colorless needles. Dry the needles by suction on filter paper or on sintered glass. Avoid too much heat, lest the crystals lose their water of crystallization. Sodium PABA prepared in this way readily forms solutions, even at 20 or 25% concentrations. The operation is not half as complicated as it looks when reading. If more time is available, it is of course easier to order the chemical from a suitable manufacturer.

With regard to sterilization, our ampuls have been sterilized by heating in boiling water for a full hour, and the results have been entirely satisfactory.

Para-aminobenzoic Acid in Sunscreen Cream

We have difficulty preparing a stable 15% para-aminobenzoic acid sunscreen cream according to Fisher's formula in THIS JOURNAL, **15**, *182(Mar., 1954).—B. C., Maryland.*

According to W. D. Kumler, THIS JOURNAL, *Scientific Edition*, **41**, 492(1951), 2% of para-aminobenzoic acid (PABA) should be an effective sunscreen. This concentration of PABA in the Fisher formula yields a more stable product.

Isotonic Buffered Eye Solutions

Please send us information about the Hind-Goyan formula for isotonic, buffered eye solutions.—C. N. D., Nebraska.

Earlier reports by H. W. Hind and F. M. Goyan appeared in THIS JOURNAL, *Scientific Edition*, **36**, 33, 413(1947). A recent report by H. W. Hind and I. J. Szekely was published in THIS JOURNAL, *Practical Pharmacy Edition*, **14**, 644(October, 1953).

(Continued on page 370)

FOR YOUR CUSTOMERS

A VACATION FROM HAY FEVER

FOR HAY FEVER

NEO-SYNEPHRINE® HCl
NASAL DECONGESTANT AND VASOCONSTRICTOR

Nasal: 0.25%, 0.5% and 1% solutions
0.5% jelly, 0.25% emulsion
Nasal Spray: 0.5% solution "squeeze" bottle
Ophthalmic: ⅛% solution

THENFADIL® HCl
EFFECTIVE, WELL TOLERATED ANTIHISTAMINIC

Oral: 15 mg. tablets

NEO-SYNEPHRINE THENFADIL
DECONGESTANT + ANTIHISTAMINIC

Nasal Solution of 0.25% Neo-Synephrine HCl and 0.1% Thenfadil HCl
Aromatic Viscous Nasal Solution and Nasal Jelly of 0.5% Neo-Synephrine HCl and 0.1% Thenfadil HCl

NTZ Nasal Solution
DECONGESTANT + ANTIHISTAMINIC + POTENTIATING PRESERVATIVE

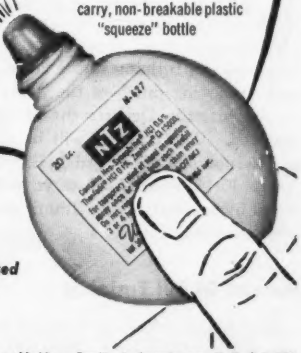
Neo-Synephrine HCl 0.5%, Thenfadil HCl 0.1%, Zephiran®chloride(1:5000)

WHETHER the inciting factor be ragweed or tree pollen, Neo-Synephrine, Neo-Synephrine Thenfadil and **NTZ** provide immediate day and night relief from stuffy, sneezing, running noses and watery eyes.

Saturation detailing and sampling by Winthrop-Stearns' professional representatives will be sending more hay fever prescriptions your way. Check your stock and make sure you have available all forms of Neo-Synephrine, as well as Neo-Synephrine Thenfadil and NTZ.

NEW! **NTZ NASAL SPRAY**

NTZ solution in easy-to-carry, non-breakable plastic "squeeze" bottle



WINTHROP

Pharmaceuticals in Daily Demand

Winthrop-Stearns INC.

Ethically Advertised and Detailed

1450 Broadway, New York 18, N.Y.

Neo-Synephrine (brand of phenylephrine); Thenfadil (brand of thenyldiamine); Zephiran (brand of benzalkonium chloride, refined), trademarks reg. U. S. Pat. Off.

Anti-H-Bomb Cloak

A white, fireproof cotton cloak has been invented and is designed to be carried during periods of national emergencies when the H-bomb might be dropped on American cities. The cloak would be easy to don and would completely swathe the wearer to protect him from flash burns.

Inventors William B. Davidson of Lake Stevens, Willard A. Wyatt and Warren B. Williamson of Monroe, Wash., report that it could be easily carried, in contrast to present anti-heat garments that use asbestos or a bulky double-wall fabrication. It would be fireproofed with chlorides of antimony.

New Director of Nurse Corps

Captain Wilma Leona Jackson, who became a prisoner of war when Guam fell to the Japanese in 1941 and later directed Nurse Corps activities there after the recapture of Guam, has been sworn in as the fourth Director of the Navy Nurse Corps with the rank of captain. She succeeds Captain Winnie Bigson who has retired after serving twenty-four years with the Navy Nurse Corps.

Army Reserves Ready for Training

The Army Reserve this year will field nearly 130,000 men from approximately 5,000 units for two weeks of training in the latest tactical methods and employing much of the Army's advanced new equipment, the Department of the Army has announced. The training will be under the over-all supervision of Lt. General J. E. Dahlquist, Chief of Army Field Forces. Reserve unit personnel, assisted by regularly assigned unit advisers, will direct actual training activities.

Korean GI Bill Training

Post-Korea veterans, released from military service before August 20, 1952, should start making plans now if they intend to enroll in Korean GI Bill training before a fast-approaching deadline. Under the law, these veterans actually must begin training before this coming August 20, in order to continue afterward.

Once a veteran has decided to train under the Korean GI Bill, he must choose the school and course he wants. He must make certain that the course is GI-approved. Any VA Regional Office can furnish him information on this point. Then he must be sure that the school will accept him for training. His next step is to file an application for Korean GI Bill training with VA, or with the approved school in which he wishes to enroll.

GI Students Cautioned on Address Changes

Korean GI Bill veteran-students who go home for the summer vacation will get their final GI allowance checks on time if they follow two steps: first, they should notify their VA Regional Office immediately if they are planning to change their addresses at the close of the school year; and, second, they should be sure to sign their final monthly certifications of training—a form required by law—before they leave school for the summer.

By letting VA know of any change of address, veterans will eliminate one major cause of delay. The reason is that the Post Office is not permitted to forward Government checks from one address to another. If a check is mailed to an address at which a veteran no longer lives, it must go back to the Treasury Department, where it remains until VA finds out where to send it.

Industrial Defense Conference

How to protect American industry from atomic attack was outlined by Defense Mobilization Director Arthur Flemming, Civil Defense Administrator Val Peterson, and other speakers at a Conference on Industrial Defense in the Atomic Age held in Washington, D. C., June 15, under sponsorship of the Chamber of Commerce of the United States.

More than 300 top executives from key industries, many in critical target areas, attended the Conference, the first of its kind in this country.

improve
capillary
resistance
in prevention
and treatment of
capillary fragility
capillary hemorrhage
vascular accidents

C.V.P.

(CITRUS FLAVONOID
COMPOUND
WITH VITAMIN C)

may protect against abnormal bleeding and vascular accidents in...

- **hypertension**
- **retinal hemorrhage**
- **diabetes**
- **radiation injury**
- **purpura**
- **tuberculous bleeding**

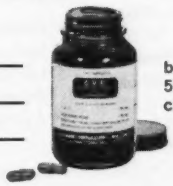
Five years of laboratory and clinical investigations establish the complete safety and value of C.V.P. in increasing capillary resistance and reducing abnormal bleeding due to capillary fragility.

C.V.P. provides natural bio-flavonoids (whole natural vitamin P complex) derived from citrus sources—potentiated by vitamin C—which act synergistically to thicken the intercellular ground substance (cement) of capillary walls, decrease permeability... and thus increase capillary resistance.

"Many instances of hemorrhage and thrombosis in the heart and brain may be avoided if adequate amounts of vitamin P and C are provided."

each C.V.P. capsule provides:	
Citrus Flavonoid Compound*	100 mg.
Ascorbic Acid (C)	100 mg.

*(water soluble whole natural vitamin "P" complex, more active than insoluble rutin or hesperidin)



bottles of 100, 500 and 1000 capsules

USV **u. s. vitamin corporation**
Casimir Funk Laboratories, Inc. (affiliate)
250 East 43rd Street, New York 17, N.Y.

FDA CRIMINAL PROSECUTION ACTIONS TERMINATED IN APRIL

Over-The-Counter Sales of Prescription Drugs

Florence, Ala.—Sold amphetamines, barbiturates, and sulfonamides without physicians' prescriptions. Fined $200 and court costs of $22.

Florence, Ala.—Sold amphetamines without physicians' prescriptions. Two defendants fined $150 each and court costs of $26.90.

Phenix City, Ala.—Sold amphetamine, barbiturates and sulfonamides without physicians' prescriptions. Fined $100.

Sheffield, Ala.—Sold amphetamines and sulfonamides without physicians' prescriptions. Two defendants fined $150 each and court costs of $33.50.

Sheffield, Ala.—Sold sulfonamides without physicians' prescriptions. Firm fined $200; individual fined $150.

Atlanta, Ga.—Sold and refilled prescriptions for amphetamine, barbiturates, hormones, sulfonamides, and thyroid without physicians' authorizations. Firm fined $500 and placed on probation for 1 year; one defendant fined $50; one fined $150; one fined $200; each individual placed on probation for 2 years.

South Bend, Ind.—Refilled prescriptions for amphetamine and barbiturates without physicians' authorizations. Four defendants: one fined $300 and court costs of $43; other three defendants fined $100 each.

South Bend, Ind.—Refilled prescriptions for amphetamine and barbiturates without physicians' authorizations. Three defendants: one fined $300 and court costs of $45.80; other three fined $100 each.

Bellevue, Ky.—Sold barbiturates without physicians' prescriptions. Fined $200 and court costs of $35.

Summersville, Mo.—Sold amphetamine, barbiturates, sulfonamides, penicillin, and bacitracin without physicians' prescriptions. Fined $500.

Akron, Ohio—Sold amphetamine and thyroid without physicians' prescriptions. Fined $75.

LaCrosse, Wis.—Sold amphetamine without physicians' prescriptions. Fined $50.

Misbranded Drugs

Newburgh, N. Y.—Carbon dioxide was labeled as oxygen. Two defendants: one fined $750, given a 6-month suspended jail sentence, and placed on probation for 6 months; one fined $150, given a 3-month suspended jail sentence, and placed on probation for 3 months.

DEPENDABLE DRESSINGS
for FIRST AID, for EMERGENCY
for DISASTER, for DEFENSE
With a distinguished record of use by the medical services of the Armed Forces, by other governmental agencies, by hospitals, by emergency and disaster units, by industrial clinics and first-aid stations . . .
Now in three sizes:
No. 1: 3" x 36" (6 in carton)
No. 2: 3" x 18" (12 in carton)
No. 3: 6" x 36" (6 in carton)
Vaseline
Petrolatum Gauze Dressing
Sterile
VASELINE STERILE PETROLATUM GAUZE DRESSINGS
...always STERILE, always READY for immediate and easy application to dress a burn, an abrasion, and other surface injuries.
have been adopted by surgeons as standard procedure, by nurses as preferred matériel, by professionally-trained aid personnel as the compact, ready-made, ready-to-apply dressing of their choice.
CHESEBROUGH MFG. CO., Cons'd
Professional Products Division · New York 4, N. Y.
Available through your Local Wholesaler or our Sales Representative, the Colgate-Palmolive-Peet Co.
VASELINE IS THE REGISTERED TRADE-MARK OF THE CHESEBROUGH MFG. CO., CONS'D

RECENT

PROGRESS IN MEDICINE

Evaluation of Stanolone in Treatment of Advanced Mammary Cancer

The results of treatment of 26 women with metastatic breast cancer, by injections of stanolone (androstane-17-(β)-ol-3-one, dihydrotestosterone) in total doses of 2.4 to 16.7 Gm., are reported by five physicians. Eleven patients experienced subjective relief for periods of 14 to 183 days. Four of these patients showed objective evidences of temporary tumor regression. Twenty-one of the 26 patients had side-reactions to the administration of stanolone which were predominantly those of virilization. From the results obtained in the study, the physicians conclude that stanolone has no qualitative or quantitative advantages over testosterone propionate in the therapy of metastatic cancer of the female breast.

[Report to A.M.A. Council on Pharmacy and Chemistry by Gellhorn, A., Holland, J., Herrmann, J. B., Moss, J., and Smelin, A., *J. Am. Med. Assoc.*, **154**, 1274(April 10, 1954).]

Use and Abuse of ACTH and Cortisone in Allergic Conditions

Two Chicago physicians summarize the present knowledge of the desirable and undesirable aspects of therapy with corticotropin (ACTH) and cortisone in allergic conditions as follows: ACTH and cortisone cure nothing. Even prolonged use does not change the underlying allergic state. Allergic patients should first receive a careful allergy survey and the time-tested treatment based on this survey. During this period the hormones should usually be withheld.

ACTH and cortisone should be used promptly in the occasional case in which death seems imminent (severe asthma, angioneurotic edema and exfoliative dermatitis especially). Excellent results occurred in all of our eight patients in this group. These hormones are also indicated for those asthmatic patients in whom careful therapy has failed. In our 50 patients, excellent results occurred in 16 and improvement in 26. There were eight failures, and when the hormone was stopped relapses occured in 16. The hormone is still necessary in 25 of these 50. Results are also excellent in both seasonal and nonseasonal rhinitis. Self-administration of cortisone is a real danger in this group; only the exceptional patient should receive the hormone. The results in the various types of dermatitis are temporary at best, and when the hormone is stopped relapse is usual. Side effects occurred in 11 of our 85 patients. Edema occurred in six, peptic ulcer in two, and headache, acne and discovery of tubercle bacilli in the sputum occurred in one each.

ACTH and cortisone are also indicated when it is necessary to alleviate symptoms so that accurate skin testing can be carried out. These hormones are best started in large doses and then decreased as symptoms subside. In some cases they must be continued for as long as a year or more. Allergic reactions ranging from mild urticaria to anaphylactic death have occurred from the hormones themselves.

[Unger, Leon, and Unger, Albert, *Annals Internal Med.*, **40**, 721(April, 1954).]

Gitalin in Congestive Heart Failure

Orally administered gitalin was evaluated by two Chicago physicians for initial digitalization and maintenance therapy in 49 cases of more or less severe congestive heart failure of miscellaneous etiology. Digitalization with the drug was tested in 29 patients, and 39 maintenance trials at various dose levels were made in 20 patients. Digitalization was accomplished in all cases without development of toxicity. The total digitalizing dose ranged from 4.0 mg. to 9.5 mg., and averaged 5.9 mg. The average time required for digitalization was 2.6 days. Studies of individual maintenance requirements of gitalin indicated that approximately 0.5 mg. is the

daily dose most likely to be both adequate and nontoxic for the majority of digitalized patients. With accepted methods of estimating the therapeutic ratio of a digitalis preparation, the average therapeutic dose of gitalin was estimated to be well below the average toxic dose. In 4 patients, in whom the digitalizing dosage was cautiously continued until toxicity developed, the ratio of the therapeutic dose to the toxic dose was 42 per cent. In a group of 9 patients on maintenance therapy, deliberate doubling of the *minimal* therapeutic dose produced toxicity in 2 (22%); of the remaining 7 patients, 2 developed toxicity when the minimal dose was tripled and 5 did not manifest toxicity when the dose was raised 3 to 6 times above the minimal therapeutic level. The physicions concluded that orally administered gitalin is effective for initial digitalization and maintenance of patients with congestive heart failure, and appears to have a wide margin of clinical safety.

[Weiss, A., and Steigmann, F., *Am. J. Med. Sci.*, **227**, 188(Feb., 1954).]

Antibiotics—Applications and Some Resulting Problems

The effects of the dramatic therapeutic successes of antibiotics against many diseases, and some of the social problems resulting from the increased average life span were cited by Selman A. Waksman before a public health forum at the Brooklyn College of Pharmacy, April 6, 1954. He mentioned actinomycin, which was reportedly effective against Hodgkin's disease, and candicidin, which appears to possess marked powers against fungal infections, as two recently discovered promising antibiotics. Dr. Waksman discussed the isolation of antibiotics from the fungi, bacteria, and actinomycetes; indicating the large percentage of the established antibiotics from the latter source. The development of knowledge of the nature and utilization of antibiotics indicates increased activities in the control of human and animal diseases, as well as in various fields pertaining to agriculture and animal husbandry.

Veratrum Alkaloids—Potency and Emetic Action

Protoveratrines A and B (Veralba), alkaloids from *Veratrum alba*, and cryptenamine (Unitensen), a mixture of alkaloids from *V. viride*, are reported to have similar ratios of emetic action to therapeutic potency. Experiments on dogs showed Veralba to have a therapeutic potency of 88 per cent and an emesis producing potency of 85 per cent compared with protoveratrine A. Unitensen showed respective values of 18 per cent and 15 per cent against the same standard.

[Richards, Alice B., *et al.*, Meeting Federation Am. Societies Exptl. Biol., Atlantic City, April 12–16 1954.]

Erythromycin in Shock Following Micrococcus Enteritis

Three Army Medical Corps physicians warn that increasing use of the broad-spectrum antibiotics means that physicians may anticipate an increase in micrococcus enteritis cases with shock and consequently more fatalities. They recommend the following precautions when giving broad-spectrum antibiotics: antibiotics should be used only when a definite indication exists, and preferably after sensitivity studies have been made. Gastrointestinal upsets, particularly diarrhea, should be a warning signal and if symptomatic therapy does not give relief, the offending antibiotic should be discontinued. Should the diarrhea become intractible and the stool cultures show *Staphylococcus aureus*, erythromycin should be given promptly. If staphylococcus is suspected as the cause for enteritis, the laboratory personnel should be notified. Appropriate media may then be utilized and resistance studies accomplished. Successful treatment of a case with 5% dextrose solution intravenously to restore blood pressure, and oral erythromycin, 1.6 Gm. daily for 3 days, to control the *Staph. aureus* infection, is reported.

[Christianson, C. S., Dacquisto, M. P., and Dobbs, W. H., *Gastroenterology*, **26**, 645(1954).]

Magnamycin in Treatment of Granuloma Inguinale

Favorable results in the treatment of granuloma inguinale in six patients (two labium majus and four penis ulcers) are reported by two Baltimore dermatologists, using enteric-coated tablets of Magnamycin (carbomycin) in doses of 200–300 mg. every six hours. All six patients showed complete healing of the lesions and no relapses have been noted after three months. No adverse reactions were encountered. The optimum dose has not yet been established. The efficacy of streptomycin and dihydrostreptomycin in the systemic treatment of this condition had been reported earlier.

[Robinson, H. H., Jr., and Cohen, Morris M., *J. Invest. Dermat.*, **22**, 263(April, 1954).]

Infant Food—Correction

An abstract in THIS JOURNAL, **15**, 268(May, 1954), under the heading "Pyridoxine Deficiency Causes Convulsions in Infants," misquoted a statement by Dr. D. B. Coursin. The statement should read: "He found that a commercial *liquid* infant food lost pyridoxine during autoclaving to the extent that the formula contained less than 60 mcg. of the vitamin per liter." The liquid formula is now made with added thermostable pure pyridoxine. No vitamin deficiencies were observed in children who received the powdered formula which was not autoclaved, and which contains an adequate amount of pyrodixine. We regret the error.

A NEW ADDITION

to the Dorsey Line of Rauwolfia Preparations

Crystoserpine

CRYSTALLINE RESERPINE, DORSEY

Provides the Valuable Hypotensive, Sedative, and Bradycrotic Actions of Rauwolfia serpentina

Crystoserpine—reserpine, Dorsey—is a chemically pure alkaloid derived from Rauwolfia serpentina. Extensive laboratory and clinical studies have shown that its therapeutic action is closely related to that of other currently available Rauwolfia preparations. Thus it displays the desirable hypotensive, bradycrotic, and sedative properties which have been responsible for the immediate and wide acceptance of Rauwolfia serpentina in the treatment of essential hypertension. Each scored Crystoserpine tablet contains 0.25 mg. of crystalline reserpine. Initial dosage is 3 to 4 tablets daily for 30 days, then 1 to 2 tablets daily.

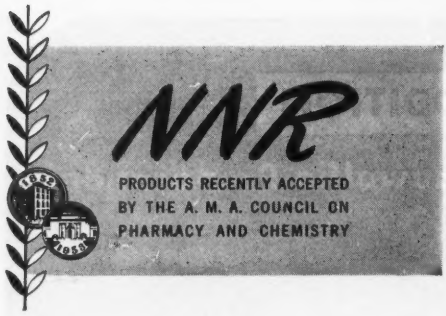
A CRYSTALLINE ALKALOID

In addition to its desirable clinical behavior, Crystoserpine possesses the distinctive advantages of chemically pure substances: uniform potency and freedom from inert impurities and less active alkaloids. Biologic assay of Crystoserpine is not necessary; hence dosage is based on actual weight of the drug.

HEAVILY PROMOTED TO PHYSICIANS

An intensive promotion program—detail calls, journal advertising, direct mail advertising—is planned for Crystoserpine. Wholesalers are stocked and are ready to receive your orders. Druggists' discounts are a full 40% off list. Standard trade packages: 100's, 500's, 1000's.

SMITH-DORSEY • Lincoln, Nebraska *A Division of* THE WANDER COMPANY



N.N.R. MONOGRAPH ABSTRACTS

[For detailed monographs on the following items see THIS JOURNAL, *Scientific Edition*, **43**, II, IV, VII (June, 1954).]

BENZATHINE PENICILLIN G.—Bicillin (Wyeth). — N,N′-Dibenzylethylenediamine dipenicillin G is a relatively insoluble complex salt of penicillin which gives somewhat more prolonged action than soluble salts. It is tasteless, does not require acid buffers for oral administration, and is stable in aqueous suspension for 24 months. When taken orally (tablets or suspension) it produces effective blood levels when adequate doses (200,000 units) are given at 6- to 8-hour intervals. For children, 3,000 units per lb. body weight. An aqueous suspension can be administered intramuscularly.

Bicillin Suspension (Oral): 60-cc. bottles. A flavored suspension containing 30,000 or 60,000 units of benzathine penicillin G in each cc. Buffered with 0.5% sodium citrate and preserved with 0.12% methylparaben, 0.014% propylparaben, and 0.625% sodium benzoate. *Bicillin Aqueous Suspension (Injection)*: 1-cc. Tubex cartridges—A suspension containing 600,000 units of benzathine penicillin G in each cc. Buffered with 0.5% sodium citrate and preserved with 0.09% methylparaben and 0.01% propylparaben. 10-cc. vials—A suspension containing 300,000 units of benzathine penicillin G in each cc. Buffered with 1% sodium citrate and preserved with 0.12% methylparaben and 0.014% propylparaben. *Bicillin Tablets*: 100,000- and 200,000- units. U. S. patent 2,627,491. U. S. trademark 569,161. Wyeth Laboratories, Inc., Philadelphia.

HYDRALAZINE HYDROCHLORIDE.—Apresoline Hydrochloride (Ciba).—1-Hydrazinophthalazine hydrochloride.—Hydralazine hydrochloride is an antipressor drug. It is used to help control essential and early malignant hypertension. Use in conjunction with other potent hypotensive drugs should not be attempted now. It is usually administered orally but may be injected (i. m. or i. v.) when the drug cannot be given by mouth. The dosage must be individualized in accordance with the response of the patient. The initial dose for moderate to severe hypertension is 10 mg., four times daily, after meals and at bedtime.

Apresoline Hydrochloride Solution: 1-cc. ampuls of solution containing 20 mg. of hydralazine hydrochloride in each cc. Preserved with 0.5% chlorobutanol. *Apresoline Hydrochloride Tablets:* 10-, 25-, 50- and 100-mg. U. S. patent 2,484,029. Ciba Pharmaceutical Products, Inc., Summit, N. J.

METHOXAMINE HYDROCHLORIDE.—Vasoxyl Hydrochloride (Burroughs Wellcome).—α-(1-Aminoethyl) - 2,5 - dimethoxybenzyl alcohol.—Methoxamine hydrochloride is a sympathomimetic amine compound which exhibits a vasopressor action (peripheral vasoconstriction). It is indicated primarily during surgery to maintain or restore arterial blood pressure. The usual dose, intramuscularly, is 10 to 15 mg. The usual intravenous dose, used only for emergencies, is 5 to 10 mg. administered slowly.

Vasoxyl Hydrochloride Solution: 1-cc. ampuls. Each cc. contains 20 mg. of methoxamine hydrochloride (*p*H 3.5–4.5).

Vasoxyl Hydrochloride Solution with Procaine Hydrochloride 1%: 1-cc. ampuls. A solution containing 15 mg. of methoxamine hydrochloride and 10 mg. of procaine hydrochloride in each cc. (*p*H 3–4). Preserved with 0.1% potassium metabisulfite. U. S. patent 2,359,707. U. S. trademark 529,974. Burroughs Wellcome & Co., Inc., Tuckahoe, N. Y.

NEW GENERIC AND BRAND NAMES RECOGNIZED BY THE A.M.A. COUNCIL ON PHARMACY AND CHEMISTRY

The listing of a brand name is not to be construed as indicating Council acceptance of the product itself. Products accepted for inclusion in N.N.R. are announced separately.

BUTALBITAL for 5-allyl-5-*sec*-butylbarbituric acid: Lotusate (Winthrop-Stearns, Inc.)

CROPROPAMIDE for α-(N′-crotonyl-N′-*n*-propylamino)-N,N-dimethylbutyramide

CROTETHAMIDE for α-(N′-crotonyl-N′-ethylamino)-N,N-dimethylbutyramide

EDATHAMIL CALCIUM-DISODIUM for the calcium chelate of the disodium salt of ethylenediaminetetraacetic acid: Calcium Disodium Versenate (Riker Laboratories, Inc.)

ETHIODIZED OIL for the ethyl ester of the iodized fatty acids of poppyseed oil: Ethiodol (E. Fougera & Company, Inc.)

MECLIZINE HYDROCHLORIDE for the dihydrochloride of 1-*p*-chlorobenzhydryl-4-*m*-methylbenzylpiperazine: Bonamine Hydrochloride (Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc.)

METCARAPHEN HYDROCHLORIDE for 2-diethylaminoethyl 1-(3′,4′-dimethylphenyl) cyclopentanecarboxylate hydrochloride: Netrin Hydrochloride (Geigy Pharmaceuticals, Division of Geigy Company, Inc.)

METHANDRIOL (formerly METHYLANDROSTENEDIOL) for 17-methyl-Δ5-androstenediol-3β,17β: Methanabol (Jackson-Mitchell Pharmaceuticals, Inc.); Methostan (Schering Corporation); Stenediol (Organon, Inc.)

(Continued on page 371)

New A.Ph.A. Members

THE ASSOCIATION EXTENDS A CORDIAL WELCOME TO THE FOLLOWING MEN AND WOMEN WHO WERE ACCEPTED FOR ACTIVE MEMBERSHIP DURING THE MONTH PRECEDING PREPARATION OF THIS ISSUE.

NEW LIFE MEMBERS

Crossen, George E., Corvallis, Oreg.
Funk, Lee W., Columbus, Ohio
Melton, Henry E., Detroit, Mich.

CALIFORNIA

Dennis, Leland B., South Gate
Guthrie, Bernard H., Downey
Jensen, Lenard A., Santa Rosa
Needham, George H., Downey
Seibert, B. Stanley, Los Angeles

CONNECTICUT

Ford, Alfred D., Hartford

DISTRICT OF COLUMBIA

Burgess, James C., Washington

FLORIDA

Finegan, Rena H., Miami Beach

IDAHO

Gaylord, Clarence C., Boise

ILLINOIS

Newman, Barney, Chicago
Ramach, Eugene A., Madison

INDIANA

Piper, Imogene, Indianapolis

MARYLAND

Gladhart, Wesley R., Jr., Baltimore

MASSACHUSETTS

Brusnicki, Joseph B., Springfield
Clark, John W. M., Athol
Giuggio, Anthony P., Jamaica Plain
Srabian, George A., Watertown

MICHIGAN

Haithco, William H., Saginaw
Morrisroe, William E., Detroit

NEW JERSEY

Mensak, George E., Elizabeth
Sorrentino, Rocco, Livingston

NEW YORK

Gottesman, George, Brooklyn
Guess, George, Brooklyn

NORTH DAKOTA

Sand, Jane M., Fargo

OHIO

Crocetti, Robert A., Columbus
Hart, Harry L., Mayfield Heights
Martin, Fred C., Columbus

PENNSYLVANIA

Hotko, Edward A., Wilkes-Barre
Marcarelli, Ralph G., Philadelphia

SOUTH DAKOTA

Vogelsang, Ella, Sioux Falls

TEXAS

Clarke, Leroy L., San Angelo
Ezell, James B., Jr., Dallas

VIRGINIA

Sutphin, Elwin C., Galax

WASHINGTON

Benson, George E., Seattle
Brunelle, Willis J., Yakima
Schooley, W. Mace, Seattle
Yearian, C. K., Chehalis

WEST VIRGINIA

Sperry, Robert B., Beckley

WISCONSIN

Holicky, William M., Oshkosh
Mallmann, Gerald P., Bristol

FOREIGN

Deopido, Maria Eddie, Iloilo, P. I.
Grondo, Walter, Frankfurt/Main, Germany
Wolf, Julius, Uetersen/Holst, Germany
Zarbis, John N., Bombay, India

Deceased Members

Feinerman, Louis E., Orange, N. J., Nov. 22, 1952
Goolsbee, J. R., Chester, Tex., April 15, 1954
Holzer, Joseph B., Green Bay, Wis., April 21, 1954
McAnany, Matthew, Chicago, Ill., April 18, 1954
Sister Jane Elizabeth, Santa Fe, N. Mex., May 18, 1954
Sister Rosella Knepler, Springfield, Ill.
Whelpley, Laura E., St. Louis, Mo., May 27, 1954 (Life Member)

It's Philadelphia for PHARMACY

Young men and women from many distant States and foreign countries come to this institution, oldest yet most modern of its kind in the Americas, for an education in Pharmacy. B.Sc., M.Sc. and D.Sc. degrees lead to interesting careers. Also Schools of Chemistry, Bacteriology and Biology. Write for free catalog. Founded 1821.

Philadelphia College OF PHARMACY AND SCIENCE

Alma Mater of Successful Pharmacists

43rd Street, Woodland and Kingsessing Avenues, Philadelphia 4, Penna.

NEW PRESCRIPTION PRODUCTS

All items on which information has been received in the past thirty days are reported here. Manufacturers are urged to send details of their new products as early as possible, so that pharmacists through these pages will have full information at the same time, or even before, products are detailed to the physician. For inclusion in this free editorial department, send descriptive literature to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, *2215 Constitution Avenue, N. W., Washington, D. C. Where possible, all descriptions should follow the style shown on these pages.*

Beta-Methischol Syrup

Description: Each fluidounce of syrup provides: betaine monohydrate, 3.5 Gm.; tricholine citrate, 1.4 Gm.; *dl*-methionine (acetylated), 0.24 Gm.; inositol, 0.5 Gm.; vitamin B_{12}, 24 mcg.; and liver concentrate, 0.8 Gm.

Indications: To help normalize fat and cholesterol metabolism, and for specific therapy in reparable liver damage.

Administration: Two to 3 tablespoonfuls or more daily, in divided doses with meals.

Form supplied: 16-oz. and gallon bottles.

Source: U. S. Vitamin Corporation, New York, N. Y.

Crystoserpine Tablets

Description: Each tablet contains 0.25 mg. of crystalline reserpine, alkaloid from *Rauwolfia serpentina.*

Indications: For hypertension requiring a mild to moderate hypotensive agent, or in combination with reduced dose of a more potent drug.

Administration: Orally, 1 to 4 tablets daily.

Form Supplied: Bottles of 100, 500, and 1,000.

Source: Smith-Dorsey, Division of the Wander Co., Lincoln, Neb.

Dactil Capsules

Description: Orange capsules, each containing 50 mg. of Dactil (N-ethyl-3-piperidyl diphenylacetate HCl); orange and white capsules, each containing 16 mg. of phenobarbital plus 50 mg. of Dactil.

Indications: For upper gastrointestinal pain and spasm. For cardiospasm, gastroduodenal spasm, biliary spasm, pylorospasm, and gastroneurosis and irritability.

Administration: One capsule four times daily.

Form Supplied: Bottles of 50.

Source: Lakeside Laboratories, Inc., Milwaukee, Wis.

Dynolen Capsules

Description: Each red and orange capsule contains: betaine hydrochloride, 167 mg.; glycine, 167 mg.; folic acid, 0.85 mg.; pyridoxine hydrochloride, 1 mg.; vitamin B_{12} 5 mcg.; intrinsic factor concentrate, 33.3 mg.; ascorbic acid, 50 mg.; and ferrous sulfate, dried, 200 mg.

Indications: In convalescence, geriatrics, and common anemias.

Administration: Three capsules daily. Six capsules daily may be required for the treatment of pernicious anemia.

Form Supplied: Bottles of 100.

Source: The Wm. S. Merrell Co., Cincinnati, Ohio.

Fasigyn Injection

Description: Each cc. of injection contains estradiol benzoate, 2.5 mg.; and progesterone, 12.5 mg.; in sesame oil.

Indications: Habitual abortion and functional secondary amenorrhea.

Administration: Deep intramuscular injection.

Form Supplied: 1-cc. Steraject cartridges (100's) and 10-cc. vials.

Source: Pfizer Laboratories, Brooklyn, N. Y.

Furadantin Pediatric Suspension

Description: Each cc. of suspension contains 5 mg. of Furadantin (nitrofurantoin) in a water-miscible gel containing alcohol 10%.

Indications: For infections caused by Proteus species, and other urinary tract infections in young children.

Administration: As directed by physician.

Form Supplied: 118-cc. bottles.

Source: Eaton Laboratories, Norwich, N. Y.

Gallogen Tablets

Description: Each tablet contains 75 mg. of Gallogen, the diethanolamine salt of the mono-*d*-camphoric acid ester of *p*-tolylmethylcarbinol.

Indications: To help increase the flow of bile, encourage activity of the gallbladder, and promote normal function of the biliary system.

Administration: One tablet three times daily for three or four weeks.
Form Supplied: Bottles of 100 and 1000.
Source: The S. E. Massengill Co., Bristol, Tenn.

Heparinate Solution

Description: Each cc. contains sodium heparin, 10 mg., in a 1% solution of mucopolysaccharides.
Indications: For use wherever atherosclerotic activity exists.
Administration: Intramuscularly only: 0.25–0.5 cc. once or twice weekly.
Form Supplied: Multidose rubber-stoppered, aluminum sealed vials containing 10 cc.
Source: Cy Laboratories, New Rochelle, N. Y.

Hesperinate-C Capsules

Description: Each capsule contains: hesperidin methyl chalcone, 10 mg.; citrus bioflavonoids complex (vitamin "P" complex), 25 mg.; ascorbic acid, 50 mg.; and mucopolysccharides, 10 mg.
Indications: To strengthen the capillary walls, thus decreasing permeability, increasing capillary resistance, and reducing abnormal bleeding due to capillary fragility.
Administration: One capsule three times daily after meals.
Form Supplied: Bottles of 50.
Source: Cy Laboratories, New Rochelle, N. Y.

Indon Tablets

Description: Each scored tablet contains 50 mg. of phenylindandione.
Indications: For such conditions as thromboembolic diseases, both real and threatened, when anticoagulant therapy with rapid onset and short duration is desired.
Administration: Orally. The dosage is governed by prothrombin determinations.
Form Supplied: Bottles of 100 tablets.
Source: Parke, Davis & Co., Detroit, Mich.

Neostene Injection

Description: Aqueous suspension containing 25 mg. of methylandrostenediol per cc.
Indications: Conditions wherein anabolic nitrogen retention is desired, such as retarded growth, hormonal deficiencies, and constitutional diseases accompanied by protein wastage.
Administration: 10–40 mg. daily.
Form Supplied: 10-cc. vials, boxes of 1, 6, and 25.
Source: E. S. Miller Laboratories, Inc., Los Angeles 11, Calif.

Parenzyme Intramuscular

Description: Parenzyme is a sesame oil suspension containing 5 mg. of crystalline trypsin in each cc.
Indications: To reduce acute local inflammation.
Administration: 0.5 to 1 cc. injected deep intragluteally 1 to 4 times daily for 3 to 8 days, or as required. *Use a dry needle and syringe. Water decreases the potency.*
Form Supplied: 5-cc. vials.
Source: National Drug Co., Philadelphia, Pa.

Rau-Vertin Tablets

Description: Tablets containing in each: *Rauwolfia serpentina* alkaloids (alseroxylon fraction), 1 mg.; and *Veratrum viride* alkaloids (alkavervir fraction), 3 mg.
Indications: In the treatment of hypertension.
Administration: One tablet three times daily, at intervals of not less than four hours, preferably after meals.
Form Supplied: Bottles of 60 and 250 tablets.
Source: The National Drug Co., Philadelphia, Pa.

Skopolate—Tablets, D.A. Tablets, P.A.M. Capsules, and Parenteral

Description: Each scored yellow Skopolate 2-mg. tablet and each blue enteric coated Skopolate D.A. (delayed action) tablet contains 2 mg. of scopolamine methyl nitrate. Each green and yellow Skopolate P.A.M. capsule contains: scopolamine methylnitrate (active parasympatholytic), 1 mg.; aluminum hydroxide, 125 mg.; and magnesium carbonate, 12.5 mg. (antacids); and sodium dodecyl sulfate (mucigogue), 12.5 mg. Skopolate parenteral contains 0.5 mg. of scopolamine methyl nitrate in each cc.
Indications: For treatment of peptic ulcer and functional gastroenteralgia. *Should not be given to patients with glaucoma.*
Administration: Skopolate 2 mg. tablets—$^1/_2$ to 2 tablets three times daily $^1/_2$ hour before meals. Skopolate D.A. tablets—1 to 2 tablets upon retiring. Skopolate P.A.M. capsules—1 to 2 capsules three times daily 2 hours after meals. Skopolate parenteral—In critical episodes, 0.5 to 1 cc. subcutaneously or intramuscularly.
Form Supplied: Both tablets in bottles of 100 and 1,000. Capsules in bottles of 100. Parenteral in boxes of three 10-cc. vials.
Source: R. J. Strasenburgh Co., Rochester, N. Y.

Teldrin Spansule

Description: Each Teldrin Spansule (sustained release capsule) contains chlorprophenpyridamine maleate, 8 mg. or 12 mg.
Indications: An antihistamine for relief of allergic disorders.
Administration: One 8- or 12-mg. capsule daily taken on arising, or two capsules daily—one in the morning and one at night. Children between 3 and 6 years: one or two 8-mg. capsules daily as above.
Form Supplied: Bottles of 30 capsules.
Source: Smith, Kline & French Laboratories, Philadelphia, Pa.

(Continued on next page)

New ℞ Products

• • • • • • • • • *from preceding page*

Thorazine Tablets and Ampul Solution for Injection

Description: Thorazine tablets each contain 10 mg. or 25 mg. of chlorpromazine HCl; the ampuls each contain 50 mg. of chlorpromazine HCl in 2 cc. of solution.

Indications: For use in neuropsychiatry and for control of nausea and vomiting.

Administration: Oral—10 mg. to 50 mg. Intramuscular—25 mg. to 50 mg. Total daily i.m. dose not to exceed 200 mg. The frequency of oral and i.m. dosage must be determined by the physician.

Form Supplied: 10-mg. and 25-mg. tablets in bottles of 50; 2-cc. (50 mg.) ampuls, in boxes of 6.

Source: Smith, Kline & French Laboratories, Philadelphia, Pa.

Other New Products

(Chemicals, clinical trial drugs, diagnostic aids, and equipment for the retail and hospital pharmacy)

Antirabies Serum

Antirabies Serum has been made available by *Lederle Laboratories Division, American Cyanamid Company.* The product, a refined and concentrated serum derived from hyperimmunized horses, is recommended as an adjunct to rabies vaccine in the prophylactic treatment of all individuals who have been exposed to rabies infection. Affording rapid antibody response, Antirabies Serum offers an extra margin of safety in rabies prophylaxis; especially in the treatment of patients who have been bitten about the head and neck. In some cases the serum may also allow a reduction in the number of injections of rabies vaccine, thereby reducing the incidence of possible postvaccinal neuroparalysis following the administration of vaccine. Antirabies Serum is supplied in 1,000-unit vials.

ASF Capsules

An anti-stress formula, to be sold under the name of ASF, is being put on the market by *J. B. Roerig & Co.* Each ASF soft gelatin capsule contains: thiamine mononitrate, 10 mg.; riboflavin, 10 mg.; niacinamide, 100 mg.; pyridoxine hydrochloride 2 mg.; calcium pantothenate, 20 mg.; ascorbic acid, 300 mg.; vitamin B_{12} activity, 4 mcg.; folic acid, 1.5 mg.; menadione (vitamin K analog), 2 mg. Dosage regimens are 2 capsules daily in acute stress situations, 1 daily for maintenance in convalescence. Supplied in bottles of 30 and 100.

Atropine Sulfate Injection

Atropine sulfate injection for subcutaneous or intramuscular use has recently been marketed by *George A. Breon & Co.* The preparation contains atropine sulfate 0.432 mg. per cc. in a buffered, isotonic, aqueous solution with sodium bisulfite 0.1% and benzyl alcohol 1.5% as preservatives. It is supplied in 30-cc. multidose vials.

Aureomycin Calcium Oral Drops (Vet.)

Aureomycin Calcium Oral Drops (Vet.) that can be administered orally to small animals and to calves has been placed on the market by *Lederle Laboratories Division, American Cyanamid Co.* It is effective in the treatment of calf scours and calf pneumomia in animals less than four weeks old and is also indicated for use in the treatment of small animal infections such as respiratory infections, bacterial infections associated with distemper, and local infections. In calves of less than four weeks and in dogs and cats, oral dosage is based on the use of approximately 10 to 25 mg./lb. of body weight per day. The product is available in 10-cc. vials with dropper.

BSP Liquid

BSP Liquid contains Ringer's solution, calamine, and isopropyl alcohol. It is applied locally twice a day to prevent bedsores. It is supplied in 4-fl. oz. bottles by *Otis E. Glidden & Co., Inc.*

Buro-Sol Powder "Doak" Concentrate

Buro-Sol Powder "Doak" Concentrate is a water-soluble powder that makes an immediate, clear, stable, Burow's solution U. S. P. It is supplied by *Doak Pharmacal Co., Inc.,* in packets containing enough powder to make 8 or 32 fluidounces of Burow's solution.

Butodex Tablets

Each Butodex tablet contains: mephenesin, 250 mg.; *d*-amphetamine sulfate, 2.5 mg.; and butobarbital sodium, 8 mg. The product is claimed to relax spasm and associated pain in arthritis, bursitis, and strains; and to reduce tremor or rigidity in Parkinson's disease and acute alcoholism. Butodex tablets made by *Paul Maney Laboratories,* are available in bottles of 100.

Chloromycetin For Solution—Intravenous

Availability of Chloromycetin (chloramphenicol) for intravenous use was recently announced by *Parke, Davis and Company.* The product, Chloromycetin For Solution, is intended as an emergency dosage form which should be discontinued as soon as the patient can take an oral dosage form. It is supplied in 0.5-Gm. ampuls together with a second ampul containing a 50% solution of N,N-dimethylacetamide for use in preparing the solution for injection.

NEW PRESCRIPTION PRODUCTS INDEX

DECEMBER, 1953—JUNE, 1954

BY PRODUCT

Achromycin, Lederle, Dec., 753
Achromycin—new dosage forms, Lederle, Mar., 137
Aeroplast Dressing, Aeroplast, Dec., 754
Almebarb Tablets, Meyer, Jan., 15
Almegesic Tablets, Meyer, Feb., 74
Anodynos-DHC Tablets, new package size, Breon, Jan., 15
Antepar Citrate Syrup, Burroughs Wellcome, Dec., 753
Aspirin for Children, Squibb, Dec., 754
Aurasol-Rorer (Improved), Rorer, Apr., 223

Bardase Tablets, Parke-Davis, Apr., 222
Bejectal with Vitamin C, Abbott, Mar., 136
Bichloracetic Acid Cervical Cauterization Unit, Kahlenberg, Mar., 137
Bicillin, children's dosage form, Wyeth, Dec., 754
Bioepiderm—new name for Biotin Solution, Breon, Jan., 15
Biomydrin Nasal Drops and Otic, Nepera, May, 288
Bristamin APC Tablets, Bristol, Dec., 754
Buthoid Suppositories, Merrell, Mar., 136

Calinese Tablets, Haskell, Jan., 13
Cenasert, Powder, Central, Jan., 15
Choledyl Tablets, Nepera, May, 287
Cillimycin Improved, Wyeth, May, 287
Cilloral Suspension, Bristol, Dec., 754
Clerex, Hygiene Research, Jan., 15
Clistin Expectorant Syrup, McNeil, Apr., 223
Cobedoce Capsules, Lincoln, Jan., 13
Coricidin Pediatric Medilets, Schering, Jan., 15
Corticloron Suspension, Schering, May, 287
Cortifan Cream, Schering, May, 287
Cortril Aqueous Suspension, Pfizer, Jan., 13
Cortril Ophthalmic Ointment, Pfizer, Jan., 13
Cortril Tablets, Pfizer, Mar., 136
Cortril with Terramycin Suspension, Pfizer, Mar., 136
Cortril Topical Ointment, Pfizer, Jan., 13
C-Reactive Protein Antiserum, Schieffelin, Mar., 137

Deltamide with Pencillin—Tablets and Suspension, Armour, Dec., 754
Dermin—Antiseptic Skin Balm, Bara, Jan., 15
Desitin Lotion, Desitin Chem., Dec., 755
Dexalme L. A. Capsules, Meyer, Apr., 233
Dramcillin-300 Suspension, White, Apr., 223
Drilozets Lozenges, withdrawal of, SK & F, Dec., 755
Duotrone Oral and Injectable, U. S. Standard Products, Mar., 136

Elixir Gerix (Geriatric Elixir), Abbott, Mar., 136
Endolac, Endo, Apr., 223
Erythrocin with Sulfas Tablets, Abbott, Feb., 75
Erythrocin Tablets, new dosage size, Abbott, Dec., 755
Erythroguent Ointment, Upjohn, Jan., 13
Estrogen-Progesterone in Oil, Breon, Apr., 223
Ethaverine Hydrochloride Solution for Injection, Lincoln, Jan., 13
Extralin F Capsules, Lilly, May, 289

Fermalox Tablets, Rorer, Dec., 753
Ferrolip Drops, Flint, Eaton, Dec., 755
Furacin Urethral Suppositories, Eaton, Dec., 755
Furadantin Tablets, new dosage size, Eaton, Dec., 755

Gantricillin (acetyl)-200, Hoffmann-La Roche, Feb., 75
Gantrisin Cream, Hoffmann-La Roche, May, 289
Gantrisin Syrup and Pediatric Suspension—new dosage forms, Hoffmann-La Roche, May, 289
Geriatrone Elixir, U. S. Vitamin, Jan., 14
Globotrin Tablets, E. L. Patch, May, 287
Gynetone Repetabs, Schering, Dec., 755

Hexathricin Aeropak, Lincoln, Jan., 14
Hexathricin Otic, Lincoln, Jan., 14
Hexaverine Tablets, Lincoln, Jan., 14
Hydergine Sublingual Tablets, Sandoz, Mar., 137
Hydrepel-A and Hydrepel-S (with Silicone) Creams, Hygiene Research, Feb., 75
Hydrocortone Tablets, new dosage size, Merck, Dec., 755
Hypnorm Capsules, Massengill, May, 289
Hypovites, C. F. Kirk, May, 287

Ilotycin Glucoheptonate I. V., Lilly, Apr., 222
Isopto-Carpine Ophthalmic Solutions, Alcon, Apr., 222

K-Cillin Liquid, Bio-Ramo, Feb., 75

Lutrexin Tablets, Hynson, Westcott & Dunning, Apr., 222

Marezine Tablets, Burroughs Wellcome, Jan., 14
Maxitate with Rauwolfia Compound Tablets, Strasenburgh, Jan., 14
Mediatric Liquid—new dosage form, Ayerst, Apr., 223
Milontin Kapseals, Parke-Davis, Jan., 14
Mol-Iron Panhemic Capsules, White, Feb., 74
Multicebrin Jr., Lilly, Apr., 223

Neo-Cortef Drops, Upjohn, May, 289
Neo-Cortef Ointment, Upjohn, Apr., 222
Neodrops—new dosage size, Walker, Apr., 223
Neomycin Ointment, Norwich, Apr., 223
Nio-Piracene Tablets, Nion, May, 289
Nitranito R. S. Tablets, Merrell, Feb., 75
Nitroglyn Tablets, Key Corp., Apr., 222
Norwich Children's Nose Drops with Neo-Synephrine, Norwich, Feb., 75

OB-6 Capsules, Kremers-Urban, May, 289

Paraderm—Burn Ointment, Bara, Feb., 75
Parsidol Tablets, Warner-Chilcott, Apr., 223
Penasoid Suspension, Parke, Davis, Apr., 223
Pen G-Cap Capsules, Upjohn, Dec., 753
Pencillin-PBZ Tablets, Ciba, Dec., 753
Prantal Cream 2%, Schering, May, 287
Pronemia Capsules, Lederle, Mar., 137

Quelicin Chloride, Abbott, Dec., 753

Raupena Tablets, Crookes, May, 288
Rauwidrine Tablets, Riker, May, 288
Readicillin, Upjohn, Jan., 14
R. S. Panthoderm Cream, U. S. Vitamin, May, 289

Salimeph-C Tablets, Kremers-Urban, Dec., 754
Salpacine Tablets—new package size, Vale, Feb., 75
Semets, Massengill, Jan., 15
Serpiloid Tablets, Riker, Feb., 74
Skin Test Antigen for Mumps, Lederle, Mar., 137
Solanital B-C Capsules, Smith, Dorsey, Dec., 755
Spasticol S. A. Tablets, Key Corp., Dec., 755
Stoppering Machines for Sterile Vials, Popper, May, 289
Sucaryl Calcium Sweetener Powder—new dosage form, Abbott, Mar., 137
Sweeta, Squibb, Dec., 755
Synkayvite-C Drops, Hoffmann-La Roche, May, 288
Syrasulfas Syrup, Upjohn, Jan., 15

Terpin Hydrate and Codeine Lozenges, Massengill, Mar., 137
Tetracyn, Roerig, Mar., 137
Tetracyn Oral Suspension, Roerig, May, 288
Thevasin Tablets, Lincoln, Jan., 15
Til-For Suspension, Tilden, May, 288
Triosulfil—Suspension and Tablets, Ayerst, Dec., 754
Thytropar Powder, Armour, Feb., 74
Topatar Cream, Sharp & Dohme, May, 289
Trevidal Tablets, Organon, May, 288
Tridipigen, Alum Precipitated, Lilly, Feb., 74
Tubex, Wyeth, Dec. 755

Vibalt (B_{12}) and Thiamine Hydrochloride Parenterals, Roerig, May, 289
Vi-Dexemin Tablets, SK & F, Feb., 75

Zincofax Cream, Burroughs Wellcome, May, 289

BY MANUFACTURER

Abbott Laboratories
Bejectal with Vitamin C, Mar., 136
Elixir Gerix (Geriatric Elixir), Mar., 136
Erythrocin with Sulfas Tablets, Feb., 75
Erythrocin Tablets, new dosage size, Dec., 755
Quelicin Chloride, Dec., 753
Sucaryl Calcium Sweetener Powder—new dosage form, Mar., 137

Aeroplast Corporation
Aeroplast Dressing, Dec., 754

Alcon Laboratories, Inc.
Isopto-Carpine Ophthalmic Solutions, Apr., 222

The Armour Laboratories
Deltamide with Penicillin—Tablets and Suspension, Dec., 754
Thytropar Powder, Feb., 74

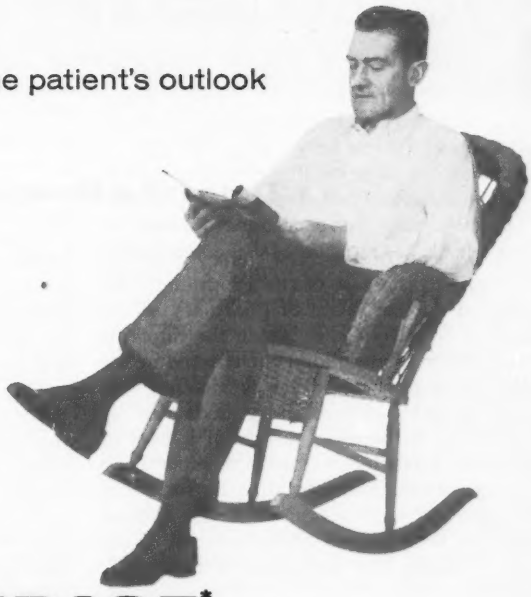
(Continued on next page)

Index

••••••••••••••*from preceding page*

Ayerst, McKenna & Harrison Ltd.
Mediatric Liquid—new dosage form, Apr., 223
Thiosulfil—Suspension and Tablets, Dec., 754
Bara Farmacal Corporation
Dermin—Antiseptic Skin Balm, Jan., 15
Paraderm—Burn Ointment, Feb., 75
Bio-Ramo Drug Company
K-Cillin Liquid, Feb., 75
George A. Breon and Company, Inc.
Anodynos-DHC Tablets, new package size, Jan., 15
Bioepiderm—new name for Biotin Solution, Jan., 15
Estrogen-Progesterone in Oil, Apr., 223
Bristol Laboratories, Inc.
Bristamin APC Tablets, Dec., 754
Cilloral Suspension, Dec., 754
Burroughs Wellcome & Company (USA), Inc.
Antepar Citrate Syrup, Dec., 753
Marezine Tablets, Jan., 14.
Zincofax Cream, May, 289
Central Pharmacal Company
Cenasert, Powder, Jan., 15
Ciba Pharmaceutical Products, Inc.
Penicillin-PBZ Tablets, Dec., 753
Crookes Laboratories, Inc.
Raupena Tablets, May, 288
Desitin Chemical Company
Desitin Lotion, Dec., 755
Eaton Laboratories, Inc.
Furacin Urethral Suppositories, Dec., 755
Furadantin Tablets—new dosage size, Dec., 755
Endo Products, Inc.
Endolac, Apr., 223
Flint, Eaton & Company
Ferrolip Drops, Dec., 755
Charles C. Haskell & Co., Inc.
Calinese Tablets, Jan., 13
Hoffmann-La Roche Inc.
Grantricillin (acetyl)-200, Feb., 75
Gantrisin Cream, May, 289
Gantrisin Syrup and Pediatric Suspension—new dosage forms, May, 289
Synkayvite-C Drops, May, 288
Hygiene Research, Inc.
Clerex, Jan., 15
Hydrepel-A and Hydrepel-S (with Silicone) Creams, Feb. 75
Hynson, Wescott & Dunning, Inc.
Lutrexin Tablets, Apr., 222
Kahlenberg Laboratories
Bichloracetic Acid Cervical Cauterization Unit, Mar., 137
Key Corporation
Nitroglyn Tablets, Apr., 222
Spasticol S. A. Tablets, Dec., 755
C. F. Kirk Company
Hypovites, May, 287
Kremers-Urban Company
OB-6 Capsules, May, 289
Salimeph-C Tablets, Dec., 754
Lederle Laboratories Division, American Cyanamid Company
Achromycin, Dec., 753
Achromycin—new dosage form, Mar., 137
Pronemia Capsules, Mar., 137
Skin test Antigen for Mumps, Mar., 137
Eli Lilly and Company
Extralin F Capsules, May, 289
Ilotycin Glucoheptonate I. V., Apr., 222
Multicebrin Jr., Apr., 223
Tridipigen, Alum Precipitated, Feb., 74
Lincoln Laboratories, Inc.
Cobedoce Capsules, Jan., 13
Ethaverhaine Hydrochloride Solution for Injection, Jan., 13
Hexathricin Aeropak, Jan., 14
Hexathricin Otic, Jan., 14
Hexaverine Tablets, Jan., 14
Thevasin Tablets, Jan., 15
The S. E. Massengill Company
Hypnorm Capsules, May, 289
Semets, Jan., 15
Terpin Hydrate and Codeine Lozenges, Mar., 137
McNeil Laboratories, Inc.
Clistin Expectorant Syrup, Apr., 223
Merck & Company, Inc.
Hydrocortone Tablets—new dosage size, Dec., 755
The William S. Merrell Company
Buthoid Suppositories, Mar., 136
Nitranitol R. S. Tablets, Feb., 75
Meyer Chemical Company, Inc.
Almebarb Tablets, Jan., 15
Almegesic Tablets, Feb., 74
Dexalme L. A. Capsules, Apr., 223
Nepera Chemical Company, Inc.
Biomydrin Nasal Dro ps and Otic, May, 288
Choledyl Tablets, May, 287
Nion Corporation
Nio-Piracene Tablets, May, 289
Norwich Pharmacal Company
Neomycin Ointment, April., 223
Norwich Children's Nose Drops with Neo-Synephrine, Feb., 75
Organon Inc.
Trevidal Tablets, May, 288
Parke, Davis & Company, Inc.
Bardase Tablets, Apr., 222
Milontin Kapseals, Jan., 14
Penasoid Suspension, Apr., 223
E. L. Patch Company
Globotrin Tablets, May, 287
Pfizer Laboratories, Chas. Pfizer & Company, Inc.
Cortril Aqueous Suspension, Jan., 13
Cortril Ophthalmic Ointment, Jan., 13
Cortril Tablets, Mar., 136
Cortril with Terramycin Suspension, Mar., 136
Cortril Topical Ointment, Jan., 13
Popper and Sons, Inc.
Stoppering Machines for Sterile Vials, May, 289
Riker Laboratories, Inc.
Rauwidrine Tablets, May, 288
Serpiloid Tablets, Feb., 74
J. B. Roerig & Company, Division of Chas. Pfizer & Company, Inc.
Tretracyn, Mar., 137
Tetracyn Oral Suspension, May, 288
Vibalt (B_{12}) and Thiamine Hydrochloride Parenterals, May, 289
William H. Rorer, Inc.
Aurasol-Rorer (Improved), Apr., 223
Fermalox Tablets, Dec., 753
Sandoz Pharmaceuticals
Hydergine Sublingual Tablets, Mar., 137
Schering Corporation
Coricidin Pediatric Medilets, Jan., 15
Corticloron Suspension, May, 287
Cortifan Cream, May, 287
Gynetone Repetabs, Dec., 755
Prantal Cream 2%, May, 287
Schieffelin and Company
C-Reactive Protein Antiserum, Mar., 137
Sharp & Dohme
Topatar Cream, May, 289
Smith-Dorsey, Division of the Wander Company
Solanital B-C Capsules, Dec., 755
Smith, Kline & French Laboratories, Inc.
Drilozets Lozenges, withdrawal of, Dec., 755
Vi-Dexemin Tablets, Feb., 75
E. R. Squibb & Sons, Division of Mathieson Chemical Corporation
Aspirin for Children, Dec., 754
Sweeta, Dec., 755
R. J. Strasenburgh Company
Maxitate with Rauwolfia Compound Tablets, Jan., 14
The Tilden Company
Til-For Suspension, May, 288
U. S. Standard Products Co.
Duotrone Oral and Injectable, Mar., 136
U. S. Vitamin Corporation
Geriatrone Elixir, Jan., 14
R. S. Panthoderm Cream, May, 289
The Upjohn Company
Erythroguent Ointment, Jan., 13
Neo-Cortef Drops, May, 289
Neo-Cortef Ointment, Apr., 222
Pen-G-Cap Capsules, Dec., 753
Readicillin, Jan., 14
Syrasulfas Syrup, Jan., 15
Vale Chemical Company, Inc.
Salpacine Tablets—new package size, Feb., 75
Walker Laboratories, Inc.
Neodrops—new dosage size, Apr., 223
Warner-Chilcott Laboratories
Parsidol Tablets, Apr., 223
White Laboratories, Inc.
Dramcillin-300 Suspension, Apr., 223
Mol-Iron Panhemic Capsules, Feb., 74
Wyeth, Inc.
Bicillin, children's dosage form, Dec., 754
Cillimycin Improved, May, 287
Tubex, Dec., 755

prescribed to brighten the patient's outlook



AMPHEDASE* KAPSEALS®

NEW antidepressant and nutritional adjunct

When depression, fatigue, and faulty food intake threaten to prolong convalescence, AMPHEDASE is prescribed as a valuable adjunct. The patient's mood is elevated and attendant fatigue lessened.

In ordering stock, remember the many indications for which physicians are prescribing AMPHEDASE: asthenia, convalescence, depression, chronic alcoholism, geriatric therapy, and faulty nutrition.

each AMPHEDASE Kapseal contains:

d-amphetamine sulfate	2.5 mg.
Nicotinamide	25.0 mg.
Thiamine hydrochloride	5.0 mg.
Ascorbic acid	50.0 mg.
Taka-Diastase	300.0 mg.

Supplied in bottles of 100 and 500 Kapseals.

More detailed information on AMPHEDASE is available from the Parke-Davis sales representative who calls on you.

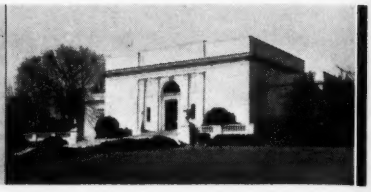
*TRADE-MARK

MEDICAMENTA VERA

Parke, Davis & Company
DETROIT, MICHIGAN

STRAIGHT FROM HEADQUARTERS

ROBERT P. FISCHELIS, EDITOR



Time for a Re-appraisal

THE decision of the New Jersey Supreme Court in the case of the Proprietary Association *vs.* the Board of Pharmacy of the State of New Jersey, in which the Supreme Court reversed the judgment entered in the Law division of New Jersey defining the term "patent and proprietary medicines" so broadly as to permit the sale of a host of drugs and medicines without the supervision of a registered pharmacist, calls for sober thought and a re-appraisal of the current situation with respect to the control of the sales of drugs and medicines in the public interest.

To understand the meaning of the decision and to make proper use of it one must review what led up to it.

The Pharmacy Law of the State of New Jersey prohibits the sale of drugs, medicines, and poisons by anyone who is not a registered pharmacist or working under the immediate personal supervision of a registered pharmacist. It exempts from these provisions, the sale of non-poisonous patent or proprietary medicines and in rural districts it exempts the sale of "simple non-poisonous domestic remedies." It also exempts certain agricultural and technical poisons under certain labeling conditions.

The terms "non-poisonous," "patent and proprietary medicines," and "simple non-poisonous domestic remedies" are not defined in the state pharmacy act. It has therefore been necessary for the Board of Pharmacy to make its own definitions and to defend these definitions in court whenever they are challenged.

Long experience in the enforcement of the New Jersey statute indicates that the absence of these definitions in the act has been no handicap to the enforcement of the law. As a matter of fact, it has been a great advantage.

In these days of our changing materia medica a product marketed today as a dangerous drug may become a simple remedy after its use has been established and its indications and contra-indications become well known.

On the other hand, what may be considered as a harmless "patent or proprietary medicine" today may be found upon continued usage and with more experience to be a really dangerous drug.

Pharmacy laws are enacted for the protection of the public and while the protection thus provided may result in confining distribution of the drug to professional channels, this is only so because it is in the public interest and not because the Legislature wishes to create a monopoly for anyone. Of course, there should be a monopoly of the sale of the drugs, medicines, and poisons in pharmacies. This is the only way in which the public can be protected to some extent against the harmful effects of drugs and medicines when self-medication is attempted.

The state, under its police powers, has recognized that all drugs have a potential for harmful effect. That is why it has created a system of licensure for practitioners who are authorized to prescribe drugs and a similar system for those who are authorized to dispense drugs. The state has also created a system of licensure for establishments which are authorized to stock and dispense drugs.

As a matter of fact, there is no such thing as a harmless drug. Every drug is a potential poison for someone and, under certain conditions, for everyone. The best illustration of this fact is that the so-called "harmless" aspirin is today killing more children than any other drug kept in the household medicine chest.

The lengthy and varied testimony which was submitted by both sides in the New Jersey case before the judge of the lower court contained so much contradictory in-

formation that the court must have had great difficulty in determining "what is truth."

Some of the Proprietary Association's expert witnesses can hardly take pride in the testimony they gave as members of the medical and allied professions. On the other hand, some of the evidence presented by the Proprietary Association to illustrate the claim that pharmacies and pharmacists do not render the professional service they are expected to in connection with the dispensing of drugs, certainly needs to be taken to heart by some careless pharmacists.

The Supreme Court decision leaves us where the whole thing started several years ago. The Court intimated rather broadly that action by the legislature is indicated to supply definitions in the Pharmacy Act which the Proprietary Association attempted to obtain through court action. The New Jersey authorities should give very careful consideration to what they are giving up before they go into any arrangement to define terms in the Act which might seriously hamper their enforcement procedure and tend to remove safeguards for the public health as far as the supervision over the distribution of drugs is concerned.

This entire situation calls for a re-appraisal of the possibility of solving this difficult problem through professional and industry cooperation. There is no reason why there should not be a meeting of minds on the part of the profession and the industry in determining how far the distribution of drugs should be permitted to go without professional supervision.

There is machinery available for working this matter out satisfactorily and it should be used. The National Drug Trade Conference Committee on Uniform State Laws should try again to work out a satisfactory way of meeting this problem so that expensive and protracted litigation on the subject can be avoided.

One of the worst things that could happen is a public washing of pharmacy's soiled linen before a committee of the New Jersey State Legislature, with drug manufacturers and general merchants lined up on one side against practicing pharmacists on the other. It seems to us that there is an obligation on the proprietary drug industry to give more than lip service to the principle that drugs are not merely merchandise.

Mrs. Laura Whelpley

ON May 27 Mrs. Laura Whelpley, widow of the late Dr. Henry M. Whelpley who was for many years dean of the St. Louis College of Pharmacy and treasurer of the AMERICAN PHARMACEUTICAL ASSOCIATION passed away after suffering a stroke at Bernard Nursing Home in St. Louis.

Mrs. Whelpley, who was 87 years of age, was almost as well known to A.PH.A. members as her distinguished husband, since she attended practically every convention of the AMERICAN PHARMACEUTICAL ASSOCIATION from 1892 to 1952.

During the Centennial year of the A.PH.A. she was the honorary president of the Women's Auxiliary of the A.PH.A., an organization which she helped to establish and participated in actively for many years. She attended the Centennial Convention in Philadelphia and participated actively in the social activities of that meeting.

Mrs. Whelpley was also active in club affairs in St. Louis throughout her lifetime and she joined Dr. Whelpley in the development of many of his avocations, which included the collection of Indian relics. For a time following the death of Dr. Whelpley she acted as secretary of the Board of Trustees of the U. S. Pharmacopeia.

She is survived by a number of nephews and nieces; and a grandnephew, Willis V. Hauser, has been made executor and co-trustee with the St. Louis Union Trust Co. of her estate which was estimated at more than $200,000. According to the *St. Louis Post-Dispatch*, Mr. Hauser will receive the income from the estate for life, after which it will be divided equally between the St. Louis College of Pharmacy and the St. Louis Academy of Science, to which Mrs. Whelpley had earlier presented her husband's collection of 40,000 Indian relics, valued at about $75,000.

Rabe Joins A.Ph.A. Staff

CHARLES C. RABE, associate professor of Pharmacy Administration at the St. Louis College of Pharmacy and Allied Science, has been named assistant to the Secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION. He will assume his new duties at the headquarters building of the A.PH.A. in Washington, D. C., shortly after July 1.

(Continued on page 376)

TENTATIVE PROGRAM

AMERICAN PHARMACEUTICAL ASSOCIATION

Convention

BOSTON, MASS.

AUGUST 22–27

PLANS for the 101st convention of the AMERICAN PHARMACEUTICAL ASSOCIATION to be held in Boston, August 22–27, have taken shape. From the reports of the Housing Bureau and the local Convention Committee it is quite probable that the Boston convention will be one of the largest in point of attendance which the ASSOCIATION has ever held.

A.PH.A Section officers, and those who are in charge of the meetings of the affiliated and related organizations, also indicate that their programs will be outstanding in the quality and timeliness of papers and discussions to be presented.

Following the usual custom, the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, the American Society of Hospital Pharmacists, the American College of Apothecaries and the National Conference of State Pharmaceutical Association Secretaries will hold meetings beginning in some instances on August 21 and continuing in all cases until Tuesday afternoon, August 24.

The AMERICAN PHARMACEUTICAL ASSOCIATION'S meetings open with the organizing session of the House of Delegates on Tuesday afternoon, August 24, at 4:00 p. m., and will be followed by the First General Session of the convention at 8:00 p. m. The President's Reception and a dance will follow later in the evening.

Wednesday morning, August 25, will be devoted to the Second Session of the House of Delegates and, as has been customary, this session will feature important reports and addresses, which will be of general interest to all members of the ASSOCIATION.

The Scientific Section will also meet on Wednesday morning and all of the Sections of the ASSOCIATION will hold simultaneous meetings on Wednesday afternoon. The new Pharmacy Student Section will meet on this afternoon also.

The Second General Session of the ASSOCIATION will be held on Thursday morning, August 26, and will be featured by several addresses, on subjects of great current interest, by speakers of national reputation. The research awards will be made at this session and tribute will be paid to the National Association of Boards of Pharmacy, which celebrates its fiftieth anniversary this year.

On Thursday afternoon all of the Sections of the ASSOCIATION will meet again. The Friday morning program will be devoted to another full session of the House of Delegates, with discussions of current problems and debate on resolutions to be adopted. Friday afternoon will be devoted to final meetings of the Sections and the convention will be concluded on Friday evening with the Final General Session and installation of officers.

The Annual Banquet of the AMERICAN PHARMACEUTICAL ASSOCIATION and affiliated groups is scheduled for Thursday evening with entertainment and an address by the Governor of Massachusetts.

For the visiting ladies there will be continuous entertainment, beginning with a symphony concert on Sunday evening. The Women's Auxiliary breakfast and meeting will be held on Monday morning. A trip to Concord and Lexington, with a luncheon at Belmont Country Club will be the feature on Tuesday. Special provision for Summer Theater attendance has been made for Wednesday. A city bus tour, including the North Shore and winding up with a luncheon and fashion show at the New Ocean House, Swampscott, and a Charles River boat trip with other sight-seeing features constitute Friday's entertainment.

Opening Meeting Sunday Evening, August 22

A symphony concert on Sunday evening, August 22, at 8:30 p.m. will open the 101st Convention of the AMERICAN PHARMACEUTICAL ASSOCIATION. Following the Invocation and introductory remarks by Convention Chairman Dr. Samuel Best, and a brief message of greetings from President F. Royce Franzoni, there will be a special musical program featuring members of the Boston Symphony Orchestra with one or more singers of outstanding reputation.

All members of the ASSOCIATION and related and affiliated groups, as well as visitors and guests of the Convention, are cordially invited to participate in this opening entertainment.

General Sessions

The first formal session of the 101st Convention will be held in the ballroom of the Hotel Statler, beginning at 8:00 p.m. on Tuesday evening, August 24.

In addition to greetings by the Mayor of Boston, a representative of the medical profession, and a representative of the Massachusetts Pharmaceutical Association, there will be a brief business session for the reception of communications and announcements.

President F. Royce Franzoni will deliver the annual presidential address and the meeting will close with the award of the National Pharmacy Week plaques and certificates by Bert R. Mull.

Second General Session

Tentative arrangements for the second general session, to be held on Thursday morning, August 26, include an address by Honorary President Eli Lilly; an address by Dr. E. Cuyler Hammond, of the American Cancer Society, on tobacco smoking as a cause of lung cancer; a tribute to the National Association of Boards of Pharmacy on the occasion of the fiftieth anniversary of its founding, by Dr. R. L. Swain, and the inaugural address of President-Elect Newell Stewart.

These addresses will be followed by the award of the Ebert Prize, the Kilmer Prize, and the Chilean Iodine Educational Bureau, Inc. Prize. Minor routine business will complete this session.

Third General Session

The final general session, to be held on Friday, August 27, will consist largely of routine business, the adoption of the resolutions as submitted by the House of Delegates, the report of the Women's Auxiliary by Mrs. Doris Kelley, its president, and the installation of officers.

Meetings of the House of Delegates

Four sessions of the House of Delegates will be held in connection with the Boston meeting. The organization meeting will occur on Tuesday afternoon, August 24, at 4:00 p.m., at which time the Credentials Committee will report and fraternal delegates will be received from departments of the Government and the Student Branches of the ASSOCIATION.

Resolutions and communications to be submitted by delegates in behalf of their organizations will be received and the nominees for the various offices submitted by delegates will be officially transmitted to the Committee on Nominations, to be appointed by Chairman Leib L. Riggs at this session.

Second Session

A number of highly important committee reports will feature the second session of the House of Delegates, to be held on Wednesday morning, August 25, at 9:00 a.m.

The Committee on Professional Relations under the chairmanship of Ron Robertson, will deal with pending interprofessional problems and this report will be supplemented by an address by Dr. Austin Smith, editor of the *Journal of the American Medical Association*, a representative of the American Veterinary Medical Association, and possibly by a representative of the American Dental Association.

The report of the Committee on Social and Economic Relations, to be presented by Chairman Stephen Wilson, will also deal with important problems, chiefly in the field of methods of paying for medical care. The committee will present the results of a study which has been made of Blue Cross and other private insurance plans, devised for easing the burden of payment for hospital and medical services, and it is anticipated that the committee will have a number of suggestions to make with regard to the pharmaceutical implications of these insurance plans.

The Committee on Legislation, headed by Dr. Hugo H. Schaefer, will report on current national legislation and will review the actions taken throughout the year to present the point of view of the A.PH.A. on matters of legislation pending in the Congress of the United States.

The Committee on Status of Pharmacists in Government Service will report on recent progress in legislation and administrative regulations bearing on pharmacy in the military service.

The Committee on Public Relations will report on the observance of National Pharmacy Week in 1953 under the chairmanship of Bert R. Mull and on the proposed observance for 1954 under the chairmanship of J. Warren Lansdowne.

Third and Fourth Sessions

The third session of the House of Delegates will be held on Friday, August 27, at 9:00 a.m. and will be devoted largely to consideration and action on resolutions resulting from the reports of officers and committees and the proposals of organizations entitled to representation in the House.

The final session of the House of Delegates will convene on Friday evening, August 27, just prior to the final general session of the ASSOCIATION, at which time officers elected at an earlier session will be installed, and unfinished and new business will receive consideration.

Entertainment Program

The entertainment program has already been referred to in paragraphs on page 344. It is well known that the Convention Committee is bending every effort to make the visit of A.PH.A. members and their families to Boston an outstanding experience and in addition to the opening concert on

(Continued on page 376)

PAPERS TO BE PRESENTED BEFORE THE SCIENTIFIC SECTION

(At sessions on Wednesday, Thursday and Friday, August 25–27.
Leroy D. Edwards, Chairman, Arthur J. McBay, Secretary, *pro tem*)

(These titles are not in the order in which the papers may be presented.)

ANALYTICAL CHEMISTRY

1. "A Study of the Reproductibility of Viscosity Determinations Using Gelatin Solutions," Lewis C. Lappas and Edgar P. King.

2. "Identification of Some Sympathomimetic Amines," William H. A. Fischer and Elmer M. Plein.

3. "Rapid Surface Tension Determinations Using a Modified Pendant Drop Technique," J. A. Campbell, J. E. Christian, and J. R. Eaton.

4. "Objective Tests for Determining the Deodorizing Effects of Chlorophyll Derivatives *In Vitro*," J. A. Campbell, J. E. Christian.

5. "The Assay of Sodium Radio-Iodide (I-131) Used for Medicinal Purposes," John J. Pinajian and John E. Christian.

6. "The Determination of Iodide-Iodate Activity in Sodium Radio-Iodide (I-131) by Automatic Scanning of Paper Chromatograms," John J. Pinajian and John E. Christian.

7. "Chemical Determinations of Protoveratrine," Ernest W. Grant and Edward E. Kennedy.

8. "Flame Photometric Determination of Sodium in Phenobarbital Sodium," Witold Saski and LaVerne D. Small.

9. "The Optical Crystallographic Properties of Some N. F. X Substances," John A. Biles.

10. "The Polarographic Determination of Acriflavine," Arthur J. Zimmer and Khalid Mansur.

11. "A Papain Assay Using Hippuramide as the Substrate," Lee Worrell and L. B. Stadler.

12. "Microtoxicology XI. Identification Differentiation of Seven New Synthetic Antispasmodics," Thomas J. Haley and George L. Keenan.

13. "A Spectrophotometric Determination of Terpin Hydrate," Herbert Platt and Arthur E. James.

14. "A Spectrophotometric Analysis for Copper and Iron in Water-Soluble Chlorophyllins," Bernard Grabowski and Arthur E. James.

15. "A Spectrophotometric Assay for Aureomycin Hydrochloride," Louis J. Ravin and Arthur E. James.

16. "An Improved Assay for Magnesium Citrate Solution, U.S.P.," Donald D. Abbott and Louis A. Reber.

17. "Chelidonic Acid as an Aid in Toxicologic and Pharmaceutic Analysis," Egil Ramstad.

18. "A Potentiometric Non-Aqueous Assay for Barbiturates and Their Preparations," Charles Swartz and Noel E. Foss.

19. "Spectrophotometric Determination of the Principal Alkaloids of Opium," Merton S. Dyer and Arthur J. McBay.

BACTERIOLOGY

26. "Iodine as a Viricidal Agent," Louis Gershenfeld.

27. "Petrolatum Gauze: Methods for Sterility Testing," L. Gershenfeld, M. A. Yarlett, and W. S. McClenahan.

28. "A Study of the Influence of Certain Chemicals on the Growth and Alkaloid Formation of *Claviceps purpurea* in Artificial Cultures," Gunnar Gjerstad and Egil Ramstad.

29. "Study of Some Phases of the Parasitic Growth of *Claviceps purpurea* on Rye," Gunnar Gjerstad and Egil Ramstad.

30. "Microbiological Assay of Tyrothricin and Gramicidin," S. Tenenbaum.

BIOCHEMISTRY

34. "The Blood Level Determinations of PAS and Isoniazid with Vanillin," Edward N. Deeb and G. Vitagliano.

35. "Vitamin B_{12} Studies—The Instability of Vitamin B_{12} in the Presence of Thiamine and Niacinamide," Milton Blitz, Edward Eigen, and Ephraim Gunsberg.

36. "The Stability of Ascorbic Acid in Various Liquid Media," F. J. Bandelin and J. V. Tuschhoff.

37. "A New Artificial 'Intestinal Juice' for the *In Vitro* Studies of Fat-Like Enteric Coatings and some *In Vivo* Tests of the Same Coatings," Gordon S. Dean and Charles W. Bauer.

38. "Some Chemical Effects of Focused Ultrasound on Glutathione and Other Compounds," Richard E. Faust and Gustav E. Cwalina.

39. "Studies on Antacids V. The Preparation and Properties of Dihydroxy Sodium Aluminum Carbonate," Irvine Grote, James M. Holbert and Marjorie Fox.

ORGANIC CHEMISTRY

44. "Preparation of Alkyl Nitrourethans," Donald Krook and C. E. Miller.

45. "The Synthesis and Investigation of Some Ethylene Bis-Dithio-Carbamate Esters as Fungicides," Alfred P. Collins and Gail A. Wiese.

46. "The Synthesis of C-14 Carbonyl Labeled Dimethylphthalate," Donald Y. Barker and John E. Christian.

47. "Substituted Xanthines I. Preparation and Properties of Some Choline Theophyllinates," Bernard F. Duesel, Harold Berman, and Rubin J. Schachter.

48. "Oxazolopyrimidine Thiazolopyrimidine Derivatives Related to the Xanthines," George P. Hager and Carl Kaiser.

49. "The Structure of Substances which Affect the Autonomic Nervous System II. Aminovinylketones," George P. Hager and Jacob S. Hanker.

50. "Mercurated Amides of *Alpha* Amino Acids," William O. Foye and Robert A. Mode.

51. "Metal Chelates and Antitubercular Activity. I. *o,o'*-Dihydroxyazo Naphthalenes and Phenanthrenes," William O. Foye and J. George Jeffrey.

52. "Metal Chelates of Streptomycin," William O. Foye, Winthrop E. Lange, Joseph V. Swintosky, and Robert E. Chamberlain.

53. "A New Racemic N-Dichloroacetamido-(*Gamma*-Pyridyl) Serinol," K. Biemann and H. Bretschmeider.

54. "Mannich Bases from 5-Nitro-2-Acetylfuran and 5-Nitro-2-Furfuralacetone," H. Cecil Caldwell and W. Lewis Nobles.

55. "Antispasmodics II. Synthesis of Some *Beta*-Dialkylaminopropionamides," Frank E. DiGangi.

56. "A Synthesis of Pseudopelletierine," Blake F. Putney and Taito O. Soine.

57. "The Preparation of 2-Hydroxythiazole," James R. O'Connell and E. V. Lynn.

58. "Some New Soluble Salts of 8-Bromo Theophylline," James M. Holbert, Irvine Grote, and Harmon Smith.

59. "Anticonvulsants. A Study of Some *Alpha* Disubstituted Malondiamides," Herbert F. Schwartz and Robert F. Doerge.

PHARMACOGNOSY

63. "The Effect of Germination on the Alkaloid Content of *Nigella damascena* Seed," V. E. Tyler, Jr.

64. "The Pharmacognosy of *Pyrulia pubera* Michx.," Edward P. Claus.

65. "Notes on the Pharmacognosy of *Erythrophleum*," James Renaud.

66. "A Pharmacognostical Study of *Gratiola neglecta*, Torrey," E. John Staba and Vartkes H. Simonian.

67. "A Study of Carbon^{14} Labelled Acetate in *Digitalis purpurea* Glycoside Biosynthesis," H. W. Youngken, Jr., and E. H. Djao.

68. "The Effects of Indole Acetic Acid and Indole Acetonitrile on the Growth and Alkaloid Synthesis in *Claviceps purpurea*," H. W. Youngken, Jr., and M. L. Berman.

69. "Further Studies on the Antibacterial Activity of *Cassia reticulata* Willd.," Heber W. Youngken and Robert A. Walsh.

70. "A Microscopic Study of the Leaf, Stem, and Root of *Pachyrrhizus Erosus* (L.) Urban" David P. Carew and Maynard W. Quimby

PHARMACOLOGY

75. "Studies to Determine the Adaptability of the Staircase Phenomenon to the Assay of the Cardiac Glycosides," Armand Brousseau and Howard J. Jenkins.

76. "Analgetic Potentiation Studies Employing the Hardy-Wolff-Goodell Dolorimeter," Howard J. Jenkins.

77. "Some Pharmacological Properties of Phenyl *Alpha*-naphthyl Ketimine," Cecil P. Headlee and Jack H. Keith.

78. "Apparatus and Technique Involved in a Laboratory Method of Detecting Drug Addiction," Cecil P. Headlee and Harold W. Coppock.

79. "A Pharmacological Study of 2-(*Beta*-Hydroxyethylaminomethyl) - 1,4 - Benzodioxane Hydrochloride," R. F. Banziger, T. S. Miya, and L. D. Edwards.

80. "The Influence of Rate of Administration Upon the Lethal Dose of Digitalis Tincture in Pigeons," Daniel P. N. Tsao.

81. "Pressor Drugs III. Safety of Inhalational Therapy," James C. Munch.

82. "The Responses of Isolated Arterial Strips to Sympatholytic and Adrenolytic Drugs," Eugene N. Greenblatt and Richard K. Thoms.

83. "*In Vitro* Effect of Sodium Lauryl Sulfate on Vaginal Pathogens," James E. O'Brien and Richard K. Thoms.

84. "A Simple Universal Fluid Drop Counter," Arthur G. Zupko and Aubert Coran.

85. "Some Pharmacological Properties of Tricyclamol, A New Anticholinergic Agent," Arthur G. Zupko and Leon D. Prokop.

86. "A Pharmacological Investigation of the Seeds of *Pyrularia pubera* Michx.," Joseph P. Buckley, Samuel T. Coker, and Rose Goldfield.

87. "Further Toxicological Studies with Erythromycin (Ilotycin, Lilly)," Robert C. Anderson, Paul N. Harris, and K. K. Chen.

88. "The Metabolism of *p*-Amino Salicylic Acid in Man," E. Leong Way, Chen-tzu Peng, Naseem Allawala, and T. C. Daniels.

89. "Further Studies on the Effect of Disulfiram (Antabuse) on Growth and Reproduction of the Albino Rat," Harald G. O. Holck, David W. Sjogren, and Gale E. Demaree.

90. "Effect of Hyperthermic Shock on 'Free and Bound' Potassium Levels," Charles A. Leonard, and Jos. W. E. Harrisson.

91. "Effect of Carbonic Anhydrase Inhibitors and Certain Antacids on Experimental Gastrointestinal Ulceration," Jos. W. E. Harrisson, E. S. Packman, G. C. Johnson, N. Back, and W. Chernick.

(Continued on page 348)

Scientific Section

•••••••••••••••• *from preceding page*

PHARMACY

97. "A Comparative Study of Mineral Oil Separation in Pharmaceutical Emulsions," Laurence A. Wasson.

98. "Buffered Ophthalmic Solutions of Silver Nitrate," Walter F. Charnicki and Mary L. Kober.

99. "A Study of Certain Pharmaceutical Emulsions Made with Ultrasound," Harold M. Beal and Donald M. Skauen.

100. "An Evaluation of Emulsifying Properties of Carrageenin," Bryant Fitzgerald and Donald M. Skauen.

101. "The Potentizing Effect of Anti-Molding Agents in Syrups," Oliver M. Littlejohn and William J. Husa.

102. "The Effect of pH Variations of Ointment Bases on the Local Anesthetic Activity of Incorporated Ethyl Aminobenzoate. I. Hydrophilic Ointment U.S.P.," V. N. Bhatia and R. H. Barber.

103. "An Evaluation of the Stability of Buffered Erythromycin Ointments," Harold Sheinans and C. O. Lee.

104. "The Relative Efficacy of Antiseptic Chemicals in a Variety of Bases as Determined by the FDA Method," Charles K. Kolstad and C. O. Lee.

105. "A Study of Anti-Infectives in Dermatologic Emulsions I. Factors Affecting the Release *In Vitro* of Certain Anti-Infectives from Emulsions," Krishna C. Varma, Nathan A. Hall, and L. Wait Rising.

106. "A Study of Anti-Infectives in Dermatologic Emulsions II. The Stability and Release of Anti-Infectives in Simple and Compound Emulsion Formulations," Krishna C. Varma, Nathan A. Hall, and L. Wait Rising.

107. "A Study of Antacids," Jack K. Dale and Roger E. Booth.

108. "Some Pharmaceutical Applications of Ethylenediamine Tetraacetic Acid," John S. Ruggiero and Martin I. Blake.

109. "Polyethylene Glycol 400 as a Stabilizing Solvent in Parenteral Pentobarbital Sodium Solutions," Jerome I. Bodin and Abraham Taub.

110. "An Evaluation of Hydrophilic Colloids as Bulking Agents," Anthony L. Monaco and Eugene J. Dehner.

111. "The Stability of Neomycin in Several Pharmaceutical Preparations," Rose Mary Simone and Robert P. Popino.

112. "Sorbic Acid as a Fungistatic Agent for Certain Pharmaceutical Preparations," D. D. Puls, L. F. Lindgren, and F. P. Cosgrove.

113. "The Use of Triangle Design in Taste Testing of Pharmaceutical Preparations," Melvin W. Green.

114. "The Absorption of Some Alkaloids by Different Clays," Nur Evcim and Martin Barr.

115. "Thixotropic Measurements of Bentonite Suspensions," Harris Bernstein and Martin Barr.

116. "A Study of Sublingual Absorption I. A Review of the Literature," Martin Katz and Martin Barr.

117. "A Study of Sublingual Absorption II. Analeptics, Hypnotics and Analgesics," Martin Katz and Martin Barr.

118. "A Study of Sublingual Absorption III. Autonomic Drugs, Neurovegetative Blocking Agents and Striated Muscle Relaxants," Martin Katz and Martin Barr.

119. "A Study of Sublingual Absorption IV. A Comparison of Sublingual Absorption from Various Tablet Bases," Martin Katz and Martin Barr.

120. "Hydrogen Peroxide Activity of Calamine Lotion," Fred C. Minardi and Earl P. Guth.

121. "The Effect of Aging on Calamine Lotion," Fred C. Minardi and Earl P. Guth.

122. "The Use of Some Imitation Flavors for Masking Distasteful Drugs. IV. Aureomycin; V. Penicillin G Potassium; VI. Terramycin Hydrochloride," Betty L. McLaughlin and Charles H. Becker.

PHYSICAL PHARMACY

127. "The Physics of Tablet Compression V. Studies on Sulfadiazine, Aspirin, Lactose and Lactose-Aspirin Tablets," T. Higuchi, L. N. Elowe, and L. W. Busse.

128. "The Physics of Tablet Compression VI. Compressional Behavior of Phenacetin, and Methacetin Formulations," L. N. Elowe, T. Higuchi, and L. W. Busse.

129. "The Kinetics of Degradation of Chloramphenicol in Solution III. Rate of Breakdown in Acidic Solutions," T. Higuchi and Arnold D. Marcus.

130. "Possible Utilization of Polyelectrolyte in Enhancing Drug Absorption," T. Higuchi and Roy Kuramoto.

131. "Studies of the Iron-III-Phenol Complex," L. J. Leeson and C. A. Discher.

132. "A Pharmaceutical Study of Drug Release from Solids," Dale E. Wurster, Eugene L. Parrott, and T. Higuchi.

133. "Complex Formation Between Certain Acids and Polyoxyethylene Sorbitan Monolaurate," Dale E. Wurster and David W. Rath.

PHYTOCHEMISTRY

138. "Tests for Rosin in Official Pharmaceuticals," Louis Fischer and Nathan A. Hall.

139. "The Isolation of Three Inositols from *Vernonia altissima*," Edward J. Rowe, Arthur A. Harwood, and Donald B. Meyers.

140. "Application of Chromatography in the Analysis of Acorn Oil," Natividad de Castro and Paul J. Jannke.

141. "Isolation of an Alkaloid from *Vinca minor*," Stanley Scheindlin and Nathan Rubin.

142. "The Hydrolytic Products of Gentiopicrin," Arnold Alpert and Egil Ramstad.

143. "Digitaloids from the Root Bark of *Euonymus atropurpurea*, Jacq.," Carman A. Bliss and Egil Ramstad.

144. "A Preliminary Phytochemical Investigation of *Ephedra viridis* Coville Found in Oregon," Erlinda N. Aragones.

SECTION ON PRACTICAL PHARMACY

Gordon A. Bergy, *Chairman*
Samuel W. Goldstein, *Secretary*

Papers:

(The following titles are not in the order in which the papers are to be presented.)

1. "Hospital Formulas and Their Need for Standardization," Edward A. Hartshorn.
2. "A Survey of Potentially Harmful Household Products," Morton J. Rodman.
3. "Petrolatum Gauze: Its Preparation and Sterilization," M. A. Yarlett, L. Gershenfeld and W. S. McClenahan.
4. "Iodine as a Virucidal Agent," Louis Gershenfeld.
5. "The Effect of pH and Iron Salts on the Stability of Solutions of Liver Fraction I, N.F. IX," Leon O. Wilken, Jr.
6. "Ascorbic Acid Syrup," F. J. Bandelin and J. B. Tuschhoff.
7. "Evaluation of Silicone Oil and Cellulose Gum Free Acid as Enteric Coatings for Compressed Tablets," T. J. Mohan and C. L. Huyck.
8. "U.S.P. XIV Disintegration Time of Some Commercially Available Coated Tablets," M. F. Meneses and C. L. Huyck.
9. "An Improved Formula for Hydrophilic Ointment," Martin Barr and Linwood F. Tice.
10. "A Comparison of the Suspending Activities of Hectorite and Bentonite for Pharmaceutical Substances," Lydia Mascardo and Martin Barr.
11. "Proportionate Buffers for Ophthalmic Solutions," William A. Harms and Orville H. Miller.
12. "The Pharmacist and Public Relations," Robert E. Abrams.
13. "A New Liquid Petrolatum Jelly Base," J. W. Kaufman, H. M. Burlage and W. R. Lloyd.
14. "Some Observations on Aqueous Methylcellulose Dispersions," W. J. Campbell, H. M. Burlage and W. R. Lloyd.
15. "Compatibility of Silicone Oils with Natural and Synthetic Waxes and Wax-like Substances," Joy Bickmore Plein and Elmer M. Plein.
16. "A Comparative Study of Disintegrating Agents in Water-Soluble Suppository Bases," Robert E. Lawson and Noel E. Foss.
17. "P.V.P. as an Adjunct in Antibacterial Preparations," H. Sheinaus and G. J. Sperandio.
18. "A Comparison Between Calculated and Observed Specific Gravities of Solutions," Isidore Greenberg.
19. "A Simple Device For Dispensing Sterile Ophthalmic Solutions," Wesley F. Johnson.
20. "What the Ophthalmologist Expects of the Pharmacist," Robert H. Schleif and Charles C. Rabe.
21. "Sources of Microorganism Contamination in Ophthalmic Solutions," Phyllis M. Sarich, Robert H. Schleif, Charles C. Rabe, and George F. Reddish.
22. "Non-ionic Surface-active Agents in Pharmaceutical Preparations," Thomas W. Schwarz.
23. "The Preparation of Suppositories; An Improved Procedure," Thomas W. Schwarz and Milton W. Nenneman, Jr.
24. Incompatibilities Occurring Between Proprietary Cough Syrups," Frances A. Reeder and J. Leon Lichtin.
25. "Guar Gum as a Binder and Disintegrator for Certain Compressed Tablets," L. E. Eatherton, P. E. Platz, and F. P. Cosgrove.
26. "The Development of Medicinal Membranes Containing Ion Exchange Adsorbates," Wilson Nashed and Glen J. Sperandio.
27. "The *In Vitro* Testing of Medicinal Membranes Containing Ion Exchange Adsorbates," Wilson Nashed and Glen J. Sperandio.
28. "A Comparative Evaluation of Preservatives for Use in Eye Solutions," W. M. Heller, D. E. Shay, C. T. Ichniowski and N. E. Foss.
29. "The Disintegration of Enteric Coated Tablets," Norman E. Brindamour and H. George DeKay.
30. "The Drying of Tablet Coatings," Robert G. Shaheen and H. George DeKay.
31. "A Study of Coatings for Granules," L. P. Gagnon, C. O. Lee and H. George DeKay.
32. "Alginic Acid and Its Derivatives as Binding and Disintegrating Agents in Tablet Manufacture," Thomas G. Gerding and H. George DeKay.
33. "Pharmacy Through the Drugstore Window," Morris L. Cooper.
34. "Dentists Want to Write Rx's," William T. Fink.
35. "A Preliminary Study of the Emulsifying Properties of the Metallic Salts of Ursolic Acid," Henry Eisen and Donald M. Skauen.
36. "PVM/MA—An Efficient Suspending Agent," Donald M. Skauen.
37. "Preparation and Evaluation of Some Pharmaceutical Jellies," Hastings H. Hutchins and Robert E. Singiser.
38. "A Study of the Solubility of Methylrosaniline Chloride," F. V. Tura, M. J. Stoklosa and A. J. McBay.
39. "Release of Neomycin from Selected Ointment Bases," Wendell T. Hill, John F. Bester and Orville H. Miller.
40. "An Improved Ephedrine Sulfate Jelly," William C. Fieldler and C. O. Lee.
41. "An Improved Aromatic Elixir," Gilbert S. Banker and C. O. Lee.
42. "Methylcellulose—A Satisfactory Dispersing Agent," Philip J. McAuliffe and Edwin E. Wilson.

JOINT SESSION

The American Society of Hospital Pharmacists and the American College of Apothecaries will join the Section on Practical Pharmacy in a Special Session at which a distinguished panel will participate in a Symposium on Antibiotics. The formal presentations will be followed by an open discussion.

SECTION ON EDUCATION AND LEGISLATION

Chairman, Ralph J. Mill; *Vice-Chairman,* Robert A. Walsh; *Secretary,* Frank L. Mercer.

Papers:

1. "Professional Economics and Legislation," S. Barnard Jeffries.
2. "A Five-Year Pharmacy Program," John L. Dandreau.
3. "A New Approach to the Teaching of Public Health," R. A. Walsh.
4. "Predictive Tests *vs.* Success," O. K. DeFoe and Frank L. Mercer.
5. "Further Experience with Curriculum Revision," Frank L. Mercer and Arthur G. Zupko.
6. "Chain Reaction in Education," Franklin S. Williams.
7. "The Five-Year Program," E. E. Roscoe.
8. "Hospital Pharmacy Internships and the Six-Year Course," George F. Archambault.
9. "Extension Service and its Place in Pharmaceutical Education," John L. Voigt.
10. "Educational Standards for Hospital Pharmacy," N. E. Hammelman.
11. "Historical Instruction As Part of 'Professional Orientation'," Glenn Sonnedecker.
12. "Indoctrination of Pharmacy Students in Ethics and Professionalism," A. J. Meyer.
13. "The Pharmaceutical Journal as a Teaching Aid," Louis E. Kazin.
14. "The Need for Leaders in Pharmaceutical Education," Melvin W. Green.
15. "Prohibition of Alcoholic Beverage Sales to Registered Drugstores," Nathan White.
16. "Industry's Needs and the Pharmaceutical Curriculum," Robert F. Larsen.
17. "A Crusade For Pharmacy," Leroy Weidle, Jr.
18. "The Educational Requirements of Hospital and Retail Pharmacists," Oliver Steppig.
19. "Why Should a Course in Inter-Professional Relations be Given in our Schools of Pharmacy," T. A. Nooner.
20. "A Report on Establishing an Annual Pharmacology Seminar," Arthur G. Zupko.
21. "Hospital Pharmacy Educational Programs," Herbert L. Flack.
22. "The Pharmacist's Stake in Industry," Lawrence J. Barrett.

HISTORICAL PHARMACY

The Section on Historical Pharmacy will meet jointly with the American Institute of the History of Pharmacy.

Section Officers: G. B. Griffenhagen, *Chairman;* E. J. Rowe, *Vice-Chairman;* G. E. Osborne, *Secretary.*

Institute Officers: Arthur H. Uhl, *President;* George Urdang, *Director;* Glenn Sonnedecker, *Secretary.*

Papers:

1. "Some Pharmacy History as Shown on Postage Stamps," Herbert C. Raubenheimer.
2. "Pharmacy Advertising in the City of Brooklyn, New York, in the Early 19th Century," Herbert C. Raubenheimer.
3. "Since 1825," John E. Kramer.
4. "Dr. Charles Caspari," B. Olive Cole (Title uncertain.)
5. "Crawford W. Long—Pharmacist Extraordinary," Kenneth L. Waters.
6. "The Artist Comments on the Pharmaceutico-Historical Paintings," Robert Thom. (Title uncertain.)
7. "Papaver Species and Opium through the Ages," Saber Gabra.
8. "Biblical Medicinal Plants," Herbert C. Raubenheimer
9. "The Development and Use of Mineral Acids in Alchemy," Norman H. Franke.
10. "Early History of Germicides," G. F. Reddish.
11. "A Study of the Notices of Judgment, Bureau of Chemistry, U.S.D.A.," James C. Munch. (Title uncertain.)
12. "The Rho Chi Society," Roy A. Bowers and David L. Cowen.
13. "Why Pharmaceutical Museums," George Griffenhagen.
14. "The Life and Work of H. C. Christensen," authorship uncertain.
15. "The Evolution of the Utah Pharmacy Law," Chesley H. Wintch, R. Thomas Buchanan, and George E. Osborne.
16. "The Utah State Board of Pharmacy," Jack B. Heinz and George E. Osborne.
17. "Symbols on the 1889 and 1907 Board of Pharmacy Registration Certificates in the State of Texas," Esther Jane Wood Hall.
18. "The National Association of Boards of Pharmacy, 1904–1954," Glenn Sonnedecker.

SECTION ON PHARMACEUTICAL ECONOMICS

(Complete Program will appear in the July issue)

PROGRAMS OF AFFILIATED ORGANIZATIONS

AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

Meetings of the Executive Committee will be held Friday, August 20, 7:30 p.m.; Saturday, August 21, 9:00 a.m., 1:00 p.m. and 7:30 p.m.; and Wednesday, August 25, 9:00 a.m. and 1:00 p.m.

FIRST SESSION: Sunday, August 22, 1:30 p.m.

Committee Appointments
Report of the President, Edward C. Reif
Report of the Secretary-Treasurer, Richard A. Deno
Report of the Chairman, Executive Committee, Louis C. Zopf
Reports of Standing Committees
Report on American Journal of Pharmaceutical Education, Rufus A. Lyman
Report of Historian, George Urdang
Report on American Council on Pharmaceutical Education, (P. H. Costello), Melvin W. Green

SECOND SESSION: Monday, August 23, 1:00 p.m.

Forum on Teachers' Seminars
Past Seminars:
- Origins, Joseph B. Burt
- Pharmacy, 1949, Arthur H. Uhl
- Pharmacy Administration, 1950, B. V. Christensen
- Pharmacology and Related Subjects, 1951, Glenn L. Jenkins
- Pharmaceutical Chemistry, 1952, Tom D. Rowe
- Pharmacognosy and Related Subjects, 1953, L. David Hiner
- Pharmaceutical Education, 1954, Harold G. Hewitt

Support by American Foundation for Pharmaceutical Education, W. Paul Briggs
Future Seminars: Some of the questions: Shall we:
- Repeat the cycle?
- Hold a Seminar on Librarianship?
- Hold Seminars on such sub-areas as:
  - Hospital Pharmacy?
  - Industrial Pharmacy?
  - Professional Orientation?
  - Professional Relations?

Joint Banquet A.A.C.P. and N.A.B.P.: Monday, August 23, 7:00 p.m.

THIRD SESSION: Tuesday August 24, 9:00 a.m.

Reports of Special Representatives
Recommendations from the Conference of Teachers
Address of President-Elect, Joseph B. Burt
Forum on Time and Place of Annual Meeting and Seminar

FOURTH (FINAL) SESSION: Tuesday, August 24, 1:00 p.m.

Reports of Special Committees
Report of Council on Conference of Teachers, Paul C. Olsen
Presentation of Award in Audio-Visual Education, Donald C. Brodie
Final Business Session

Massachusetts College of Pharmacy, Boston, Mass.

NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

The National Association of Boards of Pharmacy will celebrate the Fiftieth Anniversary of its founding at its meetings which are scheduled for Monday and Tuesday, August 23 and 24, at the Hotel Statler in Boston.

The Executive Committee of the ASSOCIATION will meet at the Hotel Statler in Boston on Friday, August 20.

The Fiftieth Anniversary Convention will open on Monday, August 23, at 9:30 a. m. Visiting members will be welcomed by representatives of the Massachusetts Board of Pharmacy, after which the Presidential Address will be delivered by Dr. Thomas D. Wyatt of Spartanburg, S. C.

This address will be followed by the report of the treasurer, Dr. Robert L. Swain, and the report of the Executive Committee, by Chairman E. M. Josey.

The report of Secretary P. H. Costello will include the annual report on licensure statistics and the annual census of pharmacy, which has been an annual contribution of the N.A.B.P. office for a number of years.

Dr. Roy Bird Cook, secretary of the West Virginia Board of Pharmacy, well known as a historian, will deliver an address entitled "N.A.B.P. in Retrospect." This will be the main feature of the semicentennial observance of the founding of the ASSOCIATION.

A preliminary report of the Committee on Constitution and By-Laws, by Chairman R. N. Watson and announcement of the appointment of the Committee on Nominations will conclude the First Session.

At 12:15 p. m., the members of the N.A.B.P. will hold their annual luncheon for board members and this will be followed by the Second Session of the Convention, beginning at 2:00 p. m. This session will be in charge of the Bureau of Law Enforcement, of which Wilbur E. Powers of the New Jersey Board of Pharmacy is the chairman.

SECOND SESSION

The principal address at this session will be entitled "The Board of Pharmacy, Its Powers and Duties," by Sol Herzog, Esq., member of the New York Bar, who was a practicing pharmacist before he took up the study of law.

Mr. Herzog will deal with the origin of Boards of Pharmacy, their scope and jurisdiction as defined by statute. His address will also go into the methods by which Boards of Pharmacy carry out their functions, the extent of their powers and duties, and the scope of their authority. He will also make an analysis of typical enabling statutes dealing with the powers and duties of the boards.

A second feature of this program will be an address entitled "Comments on Drug Law Enforcement," by N. E. Cook, assistant to the Commissioner of the Federal Food and Drug Administration.

ANNUAL BANQUET

On Monday evening, August 23, the members of the N.A.B.P. will join the members of the American Association of Colleges of Pharmacy in a joint banquet at the Hotel Statler at 6:30 p. m. President Tom Wyatt of the N.A.B.P. will act as toastmaster, and the name of the principal speaker will be announced in the official program.

THIRD SESSION

The Third Session of the N.A.B.P. meeting will be held on Tuesday, August 24 at 9:30 a. m., and the principal topic for discussion will be examination questions. This topic will be presented in the form of a seminar by Professor Leslie M. Ohmart of the Massachusetts College of Pharmacy. It will include an evaluation of current licensing examinations. Members of State Boards of Pharmacy in attendance will be furnished with copies of selected examination questions from recent licensing examinations.

These will be discussed and evaluated by Professor Ohmart.

FOURTH SESSION

The Fourth and Final Session will be held on Tuesday, August 24 at 2:00 p. m. and will consist largely of committee reports, resolutions, and the disposal of unfinished and new business. Among the committee reports to be presented, are the report on Professional Relations, by Chairman Charles S. Austin, Jr.; Minimum Standards of Technical Equipment, by Chairman Max Lemberger; Practical Experience Requirements, by Chairman C. M. Nielsen; State Legislation, by Chairman Earl S. Mason; Status of Pharmacists in Government Service, by Chairman F. Royce Franzoni; and Constitution and By-Laws, by Chairman R. N. Watson.

There will also be reports from the American Foundation for Pharmaceutical Education and the American Council on Pharmaceutical Education.

The fiftieth anniversary meeting will be concluded with action on the resolutions presented and the election and installation of officers for the ensuing year.

AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

President, Allen V. R. Beck; *Vice-President*, Adela Schneider; *Secretary*, Gloria Niemeyer; *Treasurer*, Anna D. Thiel; *Delegate to the House of Delegates*, Grover C. Bowles.

Papers:

1. "Trends to Watch in Hospital Pharmacy," Robert P. Fischelis.
2. "Should the Pharmacy Have 24-Hour Service?" Norman Baker.
3. "Preparation, Sterilization and Preservation of Ophthalmic Solutions," John Murphy.
4. "A Study of the U.S.P. Requirements for Disintegration of Tablets," Thelma Lezberg.
5. "Preliminary Evaluation of a New Iodine Germicide," Robert C. Bogash.
6. "Preservatives for Parenterals," Wesley Gladhart, Ronald Wood and W. Arthur Purdum.
7. "The Formulary System—Its Origin, Purpose, and Implementation," Grover C. Bowles, Moderator.

8. "Proposal for a Hospital Formulary Service," Don E. Francke.
9. "An Internship Manual for Hospital Pharmacy," Herbert L. Flack and Arthur W. Dodds.
10. "Suggestions for Correcting Inconsistencies in Hospital Formularies," Edward Hartshorn.
11. "Hospital Formularies and the National Formulary," Justin L. Powers.
12. "Preparation of a Stable Injection of a Mixed Alkaloidal Salt and a Barbiturate," Louis Jeffrey.
13. "An Adequate Pricing Schedule in Hospitals," S. Barnard Jeffries.
14. "A New Concept to Prepackaging Tablets in the Hospital Pharmacy," Rosemarie Pisanelli.
15. "A Sterile Solutions Program," Frank L. Larsen.
16. "Pharmacopoeias and Formularies—A Background Study," Glenn Sonnedecker.
17. "The International Pharmacopoeia—Its Evolution and Its Role in World Health," E. Fullerton Cook.

AMERICAN COLLEGE OF APOTHECARIES

Four open sessions and two closed sessions have been scheduled for the American College of Apothecaries, beginning Sunday, August 22, at 10:00 a. m. All sessions will be held at the Statler Hotel.

President Louis B. Longaker will call to order the first meeting, which is a closed session, at 10:00 a. m. and there will be greetings on behalf of the Local Committee by Mr. Paul C. Cohen and from the AMERICAN PHARMACEUTICAL ASSOCIATION by President F. Royce Franzoni.

The report of the Committee on Necrology, by J. K. Attwood; the Treasurer's report, by Charles V. Selby; the Secretary's report, by Robert E. Abrams; the Membership Committee report, by Louis J. Fischl; the Legislative Committee report, by Newell Stewart; the Policy Committee report, by Max N. Lemberger; the Publicity Committee report, by Wilfred Chagnon; the Professional Relations Committee report, by Ronald V. Robertson; and the report of the Committee on Constitution and By-Laws by R. V. Oosting, will constitute the business of this meeting.

FIRST OPEN SESSION

The first open session will be held on Sunday, August 22, at 1:30 p. m. at the Statler Hotel, with Luther M. Burton presiding. The papers and authors listed for this session follow:

1. "New Aspects in Prescription Containers," William Gordon.
2. "Increased Profits Through Modern Business Records," James Merrick.
3. "Apprenticeship and Preceptorship—Your Responsibility," Linwood F. Tice.
4. "Methods of Promoting Your Individuality," L. E. F. Minnich.
5. "Pharmaceutical Pot Pourri," Luther M. Burton.

A discussion of the above papers will follow, led by a panel of young members of the organization.

SECOND OPEN SESSION

The second open session will be held on Monday, August 23, at 9:30 a. m. at the Statler Hotel, with Leslie M. Ohmart presiding. The following papers will be presented, by the authors indicated:

6. "Interprofessional Relations," Frank Allen, M.D.
7. "Modern Trends in Drug Therapy," Dale G. Friend, M.D.
8. "Personal Experiences with Hematinics in Pediatric Practice," Louis K. Diamond, M.D.

Presentation of these papers will be followed by a discussion.

THIRD OPEN SESSION

The third open session will be held on Monday, August 23, at 1:30 p. m., with Mearl Pritchard presiding. The following papers will be presented by the authors indicated:

9. "Sterility in Ophthalmic Preparations," John T. Murphy.
10. "Pharmaceutical Dermatology," Bernard Appel, M.D.
11. "Prescription Clinic," Leslie M. Ohmart and Mitchell J. Stoklosa.

FOURTH OPEN SESSION

The fourth open session will be held Tuesday, August 24, at 9:30 a. m. at the Statler Hotel, with Louis J. Fischl presiding. The following papers will be presented by the authors indicated:

12. "Prescription Records," Mearl Pritchard and Don Pritchard.
13. "Utilizing the Prescription Surveys," Wilkins Harden.
14. "Dental Prescribing," Andrew B. Anderson and Daniel Hahn.
15. "What's in a Word," Sidney Schneider.
16. "The Professional Pharmacist" (a report on the operational and service surveys conducted by the American College of Apothecaries), Robert E. Abrams.

SECOND CLOSED SESSION

The final closed session will be held on Tuesday, August 24, at 1:30 p. m., and will include the report of the Committee on Pharmaceutical Education, by Dean Joseph B. Sprowls; report of the Committee on Pharmaceutical Industries Relations, by Calvin Berger; report of the Budget Committee, by Charles V. Selby; report of the Hospital Committee, by A. O. Micelli; report of the Committee on Voluntary Health Plans, by Arthur Einbeck; report of the Committee on Public Education Material, by Robert E. Abrams; report of the Resolutions Committee, by Calvin Berger; and report of the Committee on Nominations, by Leroy A. Weidle, Sr.

These reports will be followed by the election and installation of officers, the address of the incoming president, Louis J. Fischl, and the presentation of a scroll to retiring president Louis B. Longaker.

ANNUAL BANQUET

The annual banquet of the American College of Apothecaries will be held at the Parker House Hotel Roof Garden on Monday evening, August 23, at 7:00 p. m. The dinner will be preceded by cocktails at 6:15 p. m. President Louis B. Longaker will be the toastmaster. The J. Leon Lascoff Memorial Award will be given to Prof. Leslie M. Ohmart, with Dean Howard C. Newton of the Massachusetts College of Pharmacy making the presentation.

The Memorial Award Address will be delivered by Professor Leslie M. Ohmart, the recipient of the Award.

NATIONAL CONFERENCE OF STATE PHARMACEUTICAL ASSOCIATION SECRETARIES

The National Conference of State Pharmaceutical Association Secretaries will meet in conjunction with the 101st Convention of the AMERICAN PHARMACEUTICAL ASSOCIATION at Boston, August 21, 22, and 26. All meetings will be held at the Hotel Statler. The sessions will follow the New England town meeting plan, with round-table discussions and general participation by all in attendance.

The first session will convene at the Hotel Statler at 9:00 a.m. on Saturday, August 21, and will continue throughout the day, with intermissions for luncheon and dinner. Further meetings will be held on Sunday, August 22, both morning and afternoon, with an intermission for luncheon.

The final session will be held on Thursday afternoon, August 26, for the transaction of routine business and the election of officers.

Throughout the Saturday and Sunday sessions each of the subjects for discussion will be introduced with a brief review by one of the members of the Conference, especially assigned to each subject.

The subjects for discussion on Saturday morning and afternoon and Sunday morning will include Fair Trade; Duplication of Specialties; the Problem of Substitution; New and Amended Pharmacy Laws and Regulations; Merchandising Campaigns and Programs; Office Management; Professional and Industrial Relations between Manufacturers, Wholesalers and Retailers; Relations Between National, State and Metropolitan Pharmaceutical Associations; Veterans Administration Contracts; Television, and other Public Relations Programs.

The Sunday afternoon session will be devoted to a round-table contribution hour, during which each secretary will present some idea or exhibit for the information of the group. These ideas and exhibits will deal with projects that have proved successful in the association activities of the individual secretaries. The report of the Committee on Nominations and the election of officers will conclude this session.

The program has been so arranged as to permit members of the Conference to attend such meetings of the American Association of Colleges of Pharmacy or the National Association of Boards of Pharmacy and other related groups as they may desire throughout the Convention week. Opportunity for relaxation and sociability will be afforded at the group luncheons on Saturday and Sunday and at the annual Conference dinner on Saturday evening. These functions will also be held at the Hotel Statler.

Cora Mae Briggs, Secretary of the Nebraska Association, will preside at the luncheon honoring the past president of the Conference, on Saturday at 12:30 p.m.

Thelma Morris Coburn, Secretary of the Alabama Association, will preside at the Conference Banquet on Saturday at 7 p.m.

STUDENT BRANCH CONFERENCE AND PHARMACY STUDENT SECTION MEETINGS

In line with the action taken at the Salt Lake City Convention in 1953, arrangements have been made to implement the Student Section of the A.PH.A. at the coming meeting in Boston.

The customary Conference of Student Branch Officers and Faculty Advisers will be held at the Hotel Statler in Boston on Sunday, August 22, at 10:00 a.m. This meeting will be conducted under the auspices of the A.PH.A. Committee on Student Branches with Chairman L. F. Tice presiding. Invitations to participate will be issued to all A.PH.A. Student Branch members, their faculty advisers, the deans of colleges of pharmacy, and others who may be interested in this Conference.

Representatives of Student Branches will be called upon to bring greetings at the first session of the House of Delegates of the ASSOCIATION on Tuesday, August 24, at 4:00 p.m.

The new Pharmacy Student Section will hold its first session on Wednesday afternoon, August 25, and will meet again on Thursday afternoon, August 26.

At the first session, there will be a discussion of the proposed by-laws of the Section and the organization will be launched with temporary officers.

This will be followed by discussion of opportunities for pharmacists in the military service.

Specially assigned officers from the Medical Service Corps of the Army, the Navy, and the Air Force will give brief talks on the present situation with respect to pharmacists in their branches of the service, and a question and answer period will follow immediately.

It is planned also to have a representative of the Selective Service Administration on the program to give first-hand information with respect to pharmacy student deferments.

The second session of the Pharmacy Student Section will be held on Thursday afternoon, August 26, at the Hotel Statler, and will be devoted to two principal topics. The first topic for discussion will be Student Branch and other College Publications. Sample copies of the publications of the various Student Branches will be on display, and a discussion of content and scope of such publications will be held.

The second feature of this program will be a panel discussion on the longer program of pharmaceutical education, including the five- and six-year programs, with Chairman Leib Riggs of the House of Delegates of the A.PH.A. acting as moderator. The program of this Section will be concluded with final action on the by-laws, election of officers, and other routine business.

College of Pharmacy
University of Connecticut, Storrs

TEACHERS' SEMINAR ON PHARMACEUTICAL EDUCATION

The sixth annual Teachers' Seminar on Pharmaceutical Education, sponsored by the American Association of Colleges of Pharmacy and supported by the American Foundation for Pharmaceutical Education, will be held at the University of Connecticut, Storrs, Conn., during the week preceding the 101st Convention of the AMERICAN PHARMACEUTICAL ASSOCIATION in Boston.

The Teachers' Seminar will open on Sunday evening, August 15, with greetings and welcoming addresses and a statement of the objectives of the Seminar by Dr. L. E. Blauch, who is in charge of professional education in the U. S. Department of Health, Education and Welfare.

On Monday, August 16, in the forenoon, there will be a discussion of "The Teacher and His Work" by Dr. Blauch; "The Learning Process" by Dr. M. O. Pella; "Language in Learning and Teaching" by Dr. D. Durrell; "Nature and Function of Educational Objectives" by Dr. P. Roy Brammell. The afternoon will be devoted to discussions in separate sections on pharmacy administration, pharmaceutical chemistry, pharmacology, and pharmacognosy. In the evening a professional orientation workshop, directed by Dr. Glenn Sonnedecker, will get under way.

Tuesday, August 17, will be devoted to methods of classroom instruction, with papers and discussions.

Wednesday, August 18, will be devoted to methods of demonstration of laboratory instruction with papers and discussions, and a continuation of the professional orientation workshop in the evening.

Thursday, August 19, will be devoted to the subject of "teaching" with papers and discussions and a continuation of the professional orientation workshop.

Friday, August 20, will be devoted to a discussion of audiovisual aids; "The Evaluation of a Teacher" by Dr. R. A. Deno; and a final summary and review of the seminar by Dr. Blauch.

Requests for registration forms and further details regarding the seminar should be addressed to Dr. H. G. Hewitt, University of Connecticut, Box U-92, Storrs, Connecticut.

TEACHERS' CONFERENCES

The A.A.C.P. Section of Teachers of Graduate Instruction will meet Sunday, August 22, 7:30 p.m. The Sections of Teachers of Biological Sciences, Chemistry, Pharmacy, and Pharmacy Administration will meet Monday, August 23, 9:00 a.m.

PLANT SCIENCE SEMINAR

The 31st Annual Plant Science Seminar will be held at the University of Connecticut, Storrs, Conn., August 18 through August 21. Special housing has been arranged at the dormitories of the University, and reservations should be sent to Dr. A. E. Schwarting, University of Connecticut, College of Pharmacy, Storrs, Conn.

Registration will start Wednesday, August 18, 7:30 p.m., and the opening business session will be held the same day at 8:15 p.m. There will be a tour of the University gardens and greenhouses on Thursday afternoon, and a paper: "Somatic Mutations and Flower Color Genetics," will be read by G. A. L. Mehlquist. At the Thursday evening session, the following papers will be given: "Your National Materia Medica Collection," P. V. Hammond and G. Griffenhagen; "Demonstration of Rauwolfia Species," H. W. Youngken, Sr.; and "Chromatography and Drug Plant Analysis," F. L. Mercer. On Friday evening there will be held the Dinner and annual watermelon party; the E. L. Newcomb Memorial Awards will be given, and W. L. Camp will talk on "Taxonomy and Variation." On Saturday, August 21, a field trip will start at 9:00 a.m. There will be a seafood dinner at 5:30 near Mystic, Conn., and the final business session will be held at 8:30 p.m.

The officers are L. David Hiner, *Chairman;* J. Russell Anderson, *First Vice-Chairman;* Raymond W. Vander Wyck, *Second Vice-Chairman;* and J. Hampton Hoch, *Secretary-Treasurer.*

New England College of Pharmacy,
Boston, Mass.

Factors Affecting The Choice Of SUSPENDING AGENTS IN PHARMACEUTICALS

By PAUL W. GERDING* AND GLEN J. SPERANDIO*

LIQUIDS containing dispersed insoluble substances are commonly known as suspensions and are one of the older forms of pharmaceutical products. When developing a pharmaceutical suspension one must first determine the product's composition with regard to the active ingredients and the therapeutic effects desired. After these basic agents have been set forth, chemical compatibility and stability should be considered, both from the standpoint of immediate reaction and that of progressive reactions which may be developed in the product upon aging. Also to be considered is the effect of air, *p*H, elevated temperatures, and hydrolysis of any unstable materials. The suspending agent should be included in this study of chemical stability. It may be incompatible with the specified active ingredients, the required *p*H, or it may be decomposed by microorganisms, especially at elevated summer temperatures. In many cases a compatible preservative is necessary. Therefore, it can be seen that complex suspensions with a number of ingredients may require considerable technical knowledge as well as good pharmaceutical technique in their formulation and preparation.

The majority of the problems confronting the pharmacist in the development of a product or the preparation of a specified formula are of a physical nature. The prevention or minimizing of sedimentation is a very important problem of pharmaceutical suspensions. Two methods of decreasing sedimentation have been employed: the use of a viscous emulsion vehicle and the use of a suspending agent to form a viscous vehicle. The emulsion vehicle is used rather infrequently. Besides being a suspension in itself, it also presents problems pertaining to emulsion technology. Consequently, since aqueous vehicles containing a suspending agent are most frequently used, their physical characteristics and properties are of prime importance. The choice of a suitable suspending agent is the most important single physical factor. However, since the suspending agent is closely related to the suspension as a whole, it is best to treat all ingredients together as a total picture, noting the relationships between them.

Common deterrents in preparing a stable suspension are the crystallization of dissolved salts from solution and the precipitation or gelling of the suspending agent. Most occurrences of this nature are due to one of the following considerations: (*a*) An incorrect proportion of aqueous and other solvents which will throw some materials out of solution. Ethyl alcohol is a frequent offender here. For example, too much alcohol in a suspension may precipitate the suspending agent, inorganic salts, and other water-soluble ingredients. Too little alcohol will result in the crystallization of certain alcohol-soluble organic substances. Alcohol is mentioned as an ingredient since it is desirable to have as many as possible of the active ingredients in solution. If dissolution of specific materials is not feasible, then they too may be suspended along with the main insoluble materials. It may be noted here that an appreciable quantity of alcohol will serve as a preservative. (*b*) Precipitation of substances in solution is also caused by the presence of too large a quantity of other soluble compounds. Simple syrup

Summary

Suspending agents can be of great help in the development of satisfactory dosage forms for insoluble or partly soluble drugs. The authors enumerate four principal types of suspending agents with their composition, stable *p*H range, common incompatabilities, color of vehicle, concentration of suspending agent, as well as commercial source and method of preparation.

Presented before the Section on Practical Pharmacy, A.PH.A. Convention, Salt Lake City, Utah, August, 1953.

* Research Laboratories of the School of Pharmacy, Purdue University, Lafayette, Indiana.

when added for flavor and sweetening in large quantities will precipitate certain suspending agents. (*c*) Partial evaporation of the solvent will bring about a saturated solution and crystallization. This also increases the dose per unit volume. (*d*) Storage at lower temperatures decreases the solubility of most materials and will cause crystallization of some of them. (*e*) Freezing and boiling may bring about both chemical and physical changes which cannot be reversed or corrected.

Physical and Chemical Problems

It should be remembered, however, that all crystallization is not due to physical change and may be chemical in nature. Heavy metal salts, tannins, and other materials may precipitate suspending agents and other ingredients. In using certain suspending agents it is well to note that some of the flavoring and medicinal syrups contain tannins and may thus present potential incompatibilities.

Another physical difficulty is the clumping of the insoluble material and in some cases the caking of it on the bottom of the container. Redispersion of such suspensions is essential if therapeutic effectiveness and the proper dosage are to be obtained. Caking is a function of the physical nature of the insoluble material as well as of the suspending agent. In general, caking in a suspension may be minimized in three ways: by increasing the viscosity, by increasing the density of the suspending medium, and by providing ease of redispersion. In addition to these factors, a suspending agent may decrease sedimentation in some cases by virtue of associated qualities. Individual peculiarities such as the lattice-like crystalline structure of bentonite may aid in suspension (1). Thixotropic materials set to a gel upon standing and will revert back to a less viscous liquid upon agitation, thus providing an apparent viscosity much greater than the true viscosity.

Useful Suspending Agents

To assist in the choice of the proper suspending agents they may be classified into four groups: gums, celluloses, clays, and surface-active agents.

Gums are such materials as acacia, tragacanth, Irish moss, algin and its derivatives, pectin, and other products of similar composition, both natural and synthetic. Gums are subject to microbial decomposition and require a preservative. Suitable preservatives include sodium benzoate, the *p*-hydroxybenzoates, alcohol, and phenol. Preliminary wetting of the gum with a water-miscible liquid that is not a ready solvent for it, or admixture with dry soluble powders facilitates the preparation of mucilages. Solutions of gums are usually transparent or translucent and vary in shade from clear to tan or gray.

Celluloses are so-called synthetic gums which have been processed from cellulose. They include methylcellulose, carboxymethylcellulose, sodium cellulose sulfate, and hydroxyethylcellulose. The celluloses are incorporated into formulas in much the same manner as gums and also require a preservative. Methylcellulose is unique in that it is soluble in cold water and insoluble in hot water. Solutions of celluloses are transparent and light in color, and are usually film-forming.

Clays are the processed and purified products from montmorillonite and similar clay materials. They are dispersible in water and hydrate to form viscous, thixotropic media. Their dispersions are opaque, varying from off-white to tan in color, and are said not to require a preservative, although we recommend the inclusion of one. The various bentonites and Veegums are available for use in suspensions. Veegum dispersions are prepared by slowly adding the material to water with rapid agitation. Bentonite magmas may be made by sprinkling the powder over the water and allowing it to hydrate overnight, but it may be hydrated quickly by agitation also.

Surface-active agents which serve as suspending agents are not soluble, but are dispersible in water and include both esters and ethers, usually nonionic in nature. The majority have an ester link between the polyoxyethylene group and the hydrophobic group. The dispersions are formed by heating the agent at 70° and adding distilled water above 90° to the surfactant with rapid agitation. To obtain proper suspending activity, this procedure should be followed closely. A few examples of this type of agent are polyethylene glycol 400 monostearate, Tween 65,[1] Myrj 45[1] (esters), and G-3696[1] (ether). Their aqueous dispersions are opaque and whitish in color. They present an elegant appearance and no preservative is required under ordinary conditions, although it is preferable to add one.

The final consideration in the preparation of a satisfactory suspension is pharmaceutical elegance and consumer appeal. The product should have a pleasing odor and taste, appropriate coloring, good appearance, smooth application properties,

[1] Available from the Atlas Powder Company, Wilmington, Del.

TABLE I.—SUMMARY OF COMMONLY USED SUSPENDING AGENTS

Suspending Agent	Composition	Stable pH Range	Common Incompatibilities	Color of Vehicle	% w/v for 800 c. p. s. at 20° C.	Supplier	Method of Preparation
I. Gums							
Kraystay Type A (low viscosity)	Extract of Irish moss	4–10	Over 10% alcohol, cations esp. K, NH_4, Ca, and Mg	Translucent, slightly straw colored	1.80[a]	Phenix Pabst-ett Co., Chicago, Ill.	Gums: Sift into water with good agitation or wet out with a nonswelling solvent and add water while stirring
Kraystay Type E (medium viscosity)					1.38[a]		
Kraystay Type H (high viscosity)					1.23[a]		
Kelgin (medium viscosity)	Granular sodium alginate	4–11.5	Calcium ions	Clear, slightly straw colored	1.15	Kelco Co., New York, N. Y.	
Kelgin LV (low viscosity)		4–11.5	Heavy metal salts, gelling occurs with over 10% alcohol		2.05		
Kelgin XL (extra low viscosity)		4–11.5			3.05		
Kelcosol (high viscosity)	Fibrous algin	4–11.5			0.75		
Kelcoloid HV (high viscosity)	Propylene glycol alginate	2.5–7			0.94		
Kelcoloid LVF (low viscosity)		2.5–7			1.55		
Pectin, N. F.	Citrus or apple pectin	2–9	Zinc oxide, over 10% alcohol	Hazy, incompletely clear	3.2	Cal. Fruit Growers Exchange, Ontario, Cal.	
Tragacanth, U. S. P.	Dried gum tragacanth	2.5–9	Bi Subnitrate, over 40% alcohol	Translucent, off-white	2.75	Various Mfgrs.	
II. Celluloses							
Methylcellulose 15 c.p.s.	Methyl ether of cellulose	2–12	Tannins	Clear	7.7	Dow Chemical Co., Midland, Mich.	Methylcellulose: Place powder in water and heat to boiling, cool to 10–20° C. with occasional stirring
Methylcellulose 25 c.p.s.		2–12			6.2		
Methylcellulose 100 c.p.s.		2–12	Highly concentrated salt solutions		3.5		
Methylcellulose 400 c.p.s.		2–12			2.4		
Methylcellulose 1500 c.p.s.		2–12			1.7		
Methylcellulose 4000 c.p.s.		2–12			1.35		
Carboxymethylcellulose, low viscosity	Sodium carboxy methyl ether of cellulose	3–11.5	Ferric chloride 10% aluminum sulfate	Clear	4.1	Hercules Powder Co., Wilmington, Del.	CMC: See Gums
Carboxymethylcellulose, medium viscosity		3–11.5			1.9		
Carboxymethylcellulose, high viscosity		3–11.5			0.7		
III. Clays							
Bentonite U. S. P.	Colloidal Al silicate	3–10	Ca ions di and trivalent electrolytes	Light tan	6.3	Various Mfgrs.	Bentonite: Sprinkle over hot water and allow to hydrate overnight
Veegum	Colloidal Mg Al silicate	3–11	Ca ions	Opaque white	6.0	J. T. Vanderbilt Co., New York, N. Y.	Veegum: Slowly sift into water with agitation
Veegum HV		3–11		Opaque white	4.8		
IV. Surface-Active Agents							
Polyethylene Glycol 400 Monostearate, U. S. P.	Polyoxyethylene stearate	3.5–10.5	Phenolic compounds	Translucent white	2.25	Glyco Chem. Co. Brooklyn, N. Y.	Surface-Active Agents: Heat to 70° C. Add 90° C. water with rapid agitation
Myrj 45	Polyoxyethylene stearate	3.5–10.5	Phenolic compounds	Translucent white	1.12	Atlas Powder Co., Wilmington, Del.	
Tween 65	Polyoxyethylene tristearate	3.5–11	Phenolic compounds	Translucent white	2.15		

[a] At 20° F.

satisfactory drying properties, ease of pourability, ease of redispersion, or other specific qualities depending upon the intended use, as well as being stable. Application and spreading qualities may be improved by the addition of 1 per cent or less of a wetting agent. A foaming problem may be caused by this addition, depending on the choice of agent. In general, nonionics tend to be most compatible and some of these such as certain of the Pluronics[2] are of low foaming power.

Guide to Agent Choice

Information in the pharmaceutical literature and from manufacturers is available pertaining to the properties of the various suspending agents, and such data should be consulted in problems arising from the preparation of suspensions. Since it is somewhat difficult and time-consuming to obtain data about the many agents whenever the need arises, a chart (Table I) has been constructed to provide basic information on the properties of the more commonly used suspending agents. The objective of this chart is not to state the effectiveness of one agent as compared to another, but rather to serve as a helpful guide to the pharmacist in choosing a suitable suspending agent for any particular preparation.

In this chart, the information pertaining to Kraystay (2), algins (3), methylcellulose (4), Veegum (5), and partial data for carboxymethylcellulose (6) were obtained from the industrial literature. Data on all of the other agents were obtained through laboratory experiments. Viscosities were determined with the Brookfield Synchroelectric Viscosimeter using the appropriate spindle at 20 r.p.m.

A viscosity of 800 c.p.s. was arbitrarily chosen as the standard viscosity since this was approximately equal to that of the suspending vehicle used in Calamine Lotion U. S. P. XIV and will normally be sufficiently viscous for most pharmaceutical uses.

Acacia is not included in this chart because a concentration of approximately 30 per cent of the gum is required to produce a suspending medium equal in efficiency to those listed, and this medium is effective because of its increased density rather than its viscosity.

When utilizing the information provided in this chart it is well to remember certain facts about suspending agents. All suspending agents, especially those derived from natural sources, will vary somewhat from batch to batch in their various properties. For instance, the viscosity values provided may vary slightly for different samples of material but they will serve as a reliable guide in the majority of cases. The stability of a certain suspending agent at a specific *p*H may be adversely affected by the presence of other ions; it is a good practice to make the magma first and then add the required electrolytes or adjust the *p*H. In most cases, incompatibilities or instability due to *p*H will be evidenced within twenty-four hours after mixing.

Product Stability

After a suspending agent has been chosen, experimentation with it may bring out advantageous peculiarities of the material. When Veegum is dispersed in hot water the final viscosity is appreciably increased and if Tween 65 is dispersed at a concentration of 3 to $3^1/_2$ per cent and diluted with water after cooling, the viscosity will be greater than if the resulting concentration had been prepared in the customary manner. It was also noted in the laboratory that polyethylene glycol 400 monostearate, although remaining stable, became discolored when adjusted to an alkaline *p*H by the addition of dilute sodium hydroxide.

The method of preparation of the finished product may influence its acceptability and stability. A small quantity of a suspension prepared in a mortar may be satisfactory. An unsatisfactory suspension manufactured in this way often can be greatly improved by passage through a hand homogenizer and may then become an excellent product. Larger quantities may be passed through homogenizers or colloid mills to ensure thorough mixing and to improve the quality of the product.

In conclusion, Suspensions are versatile and are a potentially important dosage form. By following basic rules of formulation the majority of compounding and stability problems can be prevented before they arise. Suspensions can be prepared into elegant pharmaceuticals and thus provide the pharmacist with an opportunity to utilize his professional training and skill in compounding.

Myrj 45	Polyoxyethylene stearate	3.5–10.5	Phenolic compounds	white	1.12	Brooklyn, N. Y.	Surface-Active Agents: Heat to 70° C. Add 90° C. water with rapid agitation
Tween 65	Polyoxyethylene tristearate	3.5–11	Phenolic compounds	Translucent white	2.15	Atlas Powder Co., Wilmington, Del.	

[2] Available from the Wyandotte Chemicals Company, Wyandotte, Mich.

REFERENCES

(1) La Rocca, J., and Burlage, H., THIS JOURNAL, *Sci. Ed.*, **34**, 302(1945).
(2) "Kraystay Booklet," Kraft Foods Company, Chicago, Illinois.
(3) "Algin at Work," Kelco Company, New York, N. Y., 1952.
(4) "The New Powdered Methocel," Dow Chemical Company, Midland, Michigan, 1949.
(5) "Veegum Booklet," J. T. Vanderbilt Company, New York, N. Y.
(6) "Properties and Uses of Hercules Cellulose Gum," Hercules Powder Company, Wilmington, Delaware, 1951.

Some Aspects Of

RADIOISOTOPE THERAPY

Of Interest To Pharmacists

• • • • • BY G. B. HUTCHINSON*

The author has compiled basic information on the production and applications of this new medical tool. Although at present relatively few pharmacists are employed where radioisotope therapy is available, progressive pharmacists want to know about recent developments in this field.

THE FIRST radioisotope that was used in medical therapy was produced by cyclotron in 1936. It was ten years later that the first atomic pile-produced isotopes for general use became available. Now the Oak Ridge pile is the greatest producer in the world of isotopes for therapeutic experimentation and administration in general practice. Since 1946 over 22,400 shipments of radioisotopes have been made from production facilities at Oak Ridge for use in medical research, diagnosis, or therapy.

For the public's protection the Atomic Energy Commission has adopted an official policy for the allocation of isotopes as follows:

1. Physicians using radioactive material must be associated with a medical research institution, hospital clinic, or other medical organization possessing adequate facilities, and is in good standing with the local medical society. Facilities must be adequate for:
   (a) Clinical care of the patient.
   (b) Assaying, safe handling, and disposal of radioactive materials.
2. The hospital or medical institution should appoint a local "Isotope Committee" to evaluate all proposals for therapeutic use of the substances within the institution. This committee should include:
   (a) A physician trained in internal medicine.
   (b) A physician trained in hematology.
   (c) An individual experienced in assay of radioactive materials, and in protection of personnel against ionizing radiations.
   (d) Whenever possible a qualified physicist and a therapeutic radiologist. (If these are not members of the committee they should be available as consultants.)
3. The scientifically trained individual who will use or directly supervise the use of the material must be an accredited physician in good standing with the local medical society.
4. This physician must have had previous clinical experience with radiation or radioactive materials, or be directly collaborating with an individual possessing such training and experience.

In addition to these rigid requirements for the protection of the patient the Subcommittee on Human Applications established the further general policy that only isotopes with a half life of not more than 30 days would be available for internal use with humans unless extensive prior studies have been made on animals.

Presented before the City of Washington Branch of the A.PH.A., February 25, 1954.

* Senior Pharmacist, Division Administrative Services, Office of the Surgeon General, Washington, D. C.

The author acknowledges his use of the published material of D. L. Tabern, Abbott Research Laboratories.

Special Facilities Necessary

Naturally any hospital setting up an isotope service in which it is planned to receive "stock" radioisotopes and prepare patient doses must provide special facilities for storing and handling radioisotopes. There should be a minimum of two rooms and a third is desirable depending on the patient load and mode of obtaining and handling isotopes. One room should be reserved for storage of materials and administration of larger doses. It is desirable to have a separate room for assays, measurements, and instruments. The ventilating system should be independent of that of the hospital proper. All working areas should be kept covered with absorbent "diaper paper" which is changed as often as necessary. Minimum laboratory facilities provide a remote control pipetter, with a single lead brick wall for uncomplicated manipulations and transfers. Although a large "hot hood" lined with plenty of stainless steel looks nice, actually a fairly simple painted hood, plus an easily removable stainless steel or glass tray, can be made to work well, if proper care is taken, if amounts handled in one operation are small to moderate, and if operations performed are kept simple. Adequate disposal facilities for waste radioactive material and excreta must be provided. The laboratory should have one or more monitoring meters to prevent or help locate contamination. For this purpose a thin wall Geiger type tube reading from 0.2 to 20 mr./hr. serves well and has the advantage of being usable for approximate comparison assays, for spot monitoring, and even for qualitative detection of soft rays like those of carbon and sulfur. There must be a Geiger Counter Tube and shield for assay of radioactivity (all medication must be assayed before use) and for tracing the fate of the isotope in the body, excretions, etc. There should also be a scintilloscope or scintillation counter which is able to detect much smaller quantities of radiation. This equipment may be mounted on a stainless steel tray on an ordinary steel office type desk. Attempt is made to emphasize that good careful work and "know how" is worth more than elaborate equipment. The total cost of such a basic unit is between $2,000 and $3,000.

The Pharmacist Has Not Participated

Although radioisotopes are being used in hospitals for therapy and diagnosis, the pharmacist himself has had little to do with their handling. Isotope therapy is a speciality with which most pharmacists are not skilled. An entirely new terminology has been developed; values are expressed not in grams and milliliters but in millicuries, roentgens, or disintegrations per second. The substances are used for, and measured by, the radiations they emit. An entirely new type of instrumentation has been required, most of it of a complex electronic nature.

Training Is Available

The logical place to obtain minimum training is in the four-week courses given several times a year by the Oak Ridge Institute of Nuclear Studies. If the candidate is not well grounded in physics and chemistry the subject matter will be too unfamiliar to be "absorbed" properly in such a short course.

Author's Summary

Radioactive isotopes are very useful tools not only in research but in diagnosis and therapy.

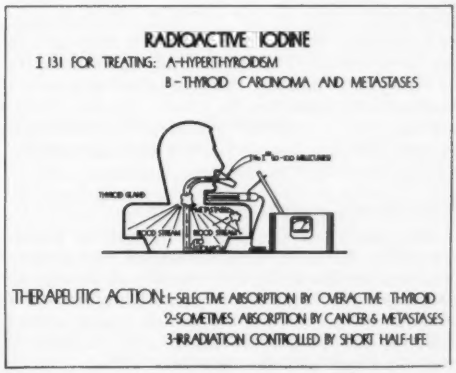
The greatest deterrent to wider clinical application is the lack of trained people. Thousands of doctors still know nothing of isotope diagnosis and therapy and this includes young physicians being graduated from medical schools today; likewise graduating radiologists have not generally had opportunity to work with radioisotopes.

Many hospitals are faced with the problem of initiating isotope work.

The pharmacist with graduate work in the chemistry and physics of radioactive isotopes and experience in the technique of handling ionizing materials can make a valuable contribution to the proper use of isotopes in the hospital.

Preparations of Radioisotopes Are Pharmaceuticals

However it must not be overlooked that preparations of radioisotopes for human administration are pharmaceuticals and that infection can just as readily arise from a nonsterile parenteral solution of phosphorus-32 as a nonsterile solution of procaine or pentothal. In the days when many administrations were made orally, and only then to very ill patients, this was not too serious a factor, but today, where isotopes are being used as diagnostic tools and



as a routine substitution for certain types of surgery, the responsibility can no longer be avoided. The hospital pharmacist therefore certainly should have a voice in the utilization of the isotope project in his hospital and in the establishment of the isotope unit if his hospital is undertaking work of this sort.

Isotopes Being Used

In general the radioisotopes being used in greater prominence are: iodine-131, carbon-14, phosphorus-32, gold-198, cobalt-60, sulfur-35, hydrogen (tritium H-3); in addition to many others. These are available in the simplest and most generally adaptable form, that is, as the element, or as a simple salt, such as carbonate, nitrate, or oxide. Also available are more than 300 "labeled" compounds; two important ones being I-131-labeled diiodofluorescein and iodinated human serum albumin.

Mode of Production

Cyclotron production is not being considered here. Radioisotopes are produced in the nuclear reactor by two processes: (1) fission of uranium-235 or other fissionable nuclei, and (2) neutron absorption by nonfissionable nuclei placed in the reactor for the purpose. The latter method yields a much wider variety of radioelements than can be obtained through fission.

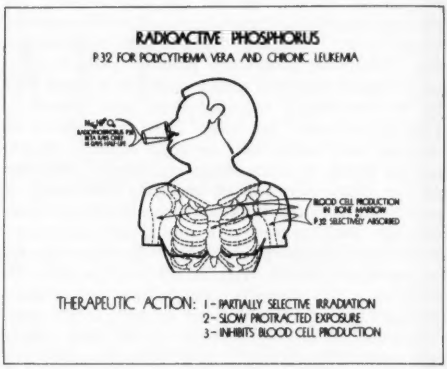
The above named isotopes are used therapeutically and as diagnostic agents. They are used to investigate by the tracer technique the metabolism of drugs and natural products, complex biological processes, and also for tumor localization. For instance Iodine-131 is used extensively for both diagnosis and therapy of thyroid diseases. With tracer doses of 25 to 100 microcuries hyperthyroid patients usually take up over 50% in 24 hours as contrasted with 10–20% for normal individuals. These measurements can be made readily 24 hours after dosage by means of a Geiger counter placed on the neck of the patient over the thyroid. The method is said to be 91% accurate. A pharmaceutical research laboratory has developed a unique method for administering tracer doses of I-131. It is a capsule of sodium radio-iodide having no filler whatsoever, but has firmly attached to the interior walls an unweighable amount of the isotope needed for a tracer dose. It is possible to compare the amount in the thyroid of the patient directly with another capsule of the same lot which will be identical with the capsule administered within 3%. Several prominent groups agree that a very simple determination of I-131 uptake (requiring but a few minutes and no hospitalization) is considerably more accurate as a diagnostic measure than the laborious determination of the basal metabolic rate. Several thousands of cases of hyperthyroidism have been treated in over 200 hospitals and clinics now using radioactive iodine for this purpose.

Therapy of Choice Over Surgery

The conditions where I-131 therapy of hyperthyroidism is the procedure of choice over surgery are listed by Clark of the University of Chicago as: (1) recurrent hyperthyroidism, (2) presence of other pathology making the patient a poor surgical risk, (3) propylthiouracil failures, (4) individuals over 45, (5) people who want it.

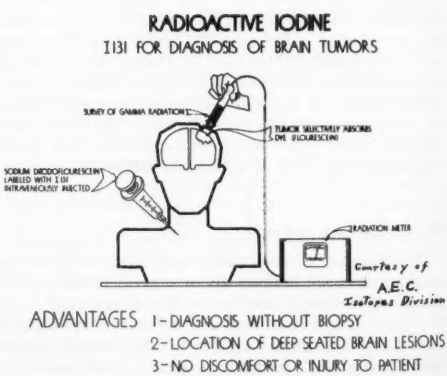
Radioactive Phosphorus

Phosphorus-32 is the element of second greatest medical interest. After administration it is deposited in large amounts in bone and bone marrow and is the treatment of choice in polycythemia vera. In a recent report the statement is made that this treatment is just as successful and the prognosis for the patient just as favorable as is treatment of diabetes with insulin. This opinion is not concurred in by all medical nuclear scientists.


RADIOACTIVE PHOSPHORUS
P-32 FOR POLYCYTHEMIA VERA AND CHRONIC LEUKEMIA
BLOOD CELL PRODUCTION IN BONE MARROW
P-32 SELECTIVELY ABSORBED
THERAPEUTIC ACTION: 1-PARTIALLY SELECTIVE IRRADIATION
2-SLOW PROTRACTED EXPOSURE
3-INHIBITS BLOOD CELL PRODUCTION

P-32 as a Tumor Localizer

A second characteristic of P-32 is its incorporation in rapidly metabolizing tissues; thus neoplastic tissues take up amounts greater than normal and this makes it valuable in localizing certain tumors, particularly those of the brain. But, since P-32 is only a beta emitter whose effective range in tissue is of the order of a few centimeters it was necessary to devise a miniature Geiger counter that could be inserted directly into the brain tissue. I-131 also emits gamma rays and these have a range outside the skull. This permits measurements to be made independently of operative procedures. I-131-labeled diiodofluorescein (Abbott) has been used in the localization of 500 brain tumors with an accuracy of 95%, according to one report.


RADIOACTIVE IODINE
I131 FOR DIAGNOSIS OF BRAIN TUMORS
SURVEY OF GAMMA RADIATION
TUMOR SELECTIVELY ABSORBS DYE (FLUORESCEIN)
SODIUM DIIODOFLUORESCEIN LABELLED WITH I131 INTRAVENOUSLY INJECTED
RADIATION METER
Courtesy of A.E.C. Isotopes Division
ADVANTAGES 1-DIAGNOSIS WITHOUT BIOPSY
2-LOCATION OF DEEP SEATED BRAIN LESIONS
3-NO DISCOMFORT OR INJURY TO PATIENT

Method of Application

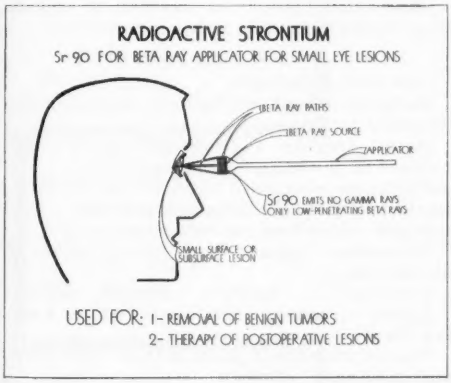
Radioisotope therapy involves physical placement or chemical placement. The former is done in three ways: (1) teletherapy, (2) interstitial placement, and (3) intracavitary placement. These all have very limited applications and in theory are used as alternates for X-rays or radium in selected patients. Cobalt-60 and gold-198 have the widest application in interstitial and intracavitary placements. Iodine-131 and phosphorus-32 are examples of isotopes used in chemical placement.

Teletherapy

This method involves the use of large gamma ray outputs. Cobalt-60, europium-152 and 154, and cesium-137 are used. Teletherapy machines may offer several advantages over X-ray machines, including economical construction, maintenance, and operation. It is claimed they allow better skin tolerances and more accurate dosage schedules; are of comparative small size and easy maneuverability.

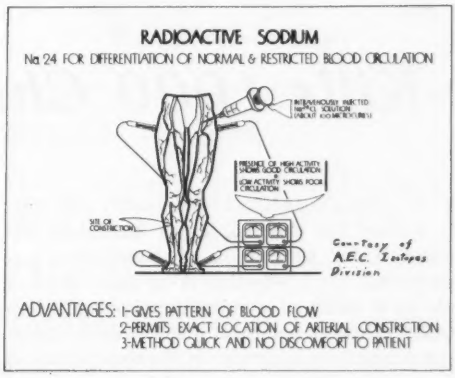
Eye Applicator

An example of teletherapy by beta ray emanations is the medical applicator designed by Tracerlab for radioactive isotope therapy of surface conditions, particularly of the eye, with strontium-90. Strontium-90 decays to yttrium-90 and this to stable zirconium. This applicator contains 50 mc. of the isotope; the source is covered by stainless steel and aluminum and is mounted on a $6^3/_4$-in. polished aluminum shaft passing through a 4-in. diameter plexiglass shield. The distribution of this instrument is controlled by the AEC (all purchase orders must be accompanied by an approved application on Form AEC 313).


RADIOACTIVE STRONTIUM
Sr 90 FOR BETA RAY APPLICATOR FOR SMALL EYE LESIONS
BETA RAY PATHS
BETA RAY SOURCE
APPLICATOR
Sr 90 EMITS NO GAMMA RAYS
ONLY LOW-PENETRATING BETA RAYS
SMALL SURFACE OR SUBSURFACE LESION
USED FOR: 1- REMOVAL OF BENIGN TUMORS
2- THERAPY OF POSTOPERATIVE LESIONS

Future of Radioisotope Utilization in Medicine. Research vs. Diagnosis and Therapy

Dr. Paul C. Aebersold states that "Although a large part of the interest in the medical use of radioisotopes has in the past been focused on the therapeutic applications, their use in diagnosis and more particularly in research will in the long run undoubtedly prove much more important. In the first place the prerequisites for most therapeutic applications cannot be met. Most therapeutic applications are dependent on introducing the radiomaterial into the system, requiring a selective uptake in the diseased tissue by a factor of about 100 times the uptake in normal tissue. By way of example, 5,000 roentgens or more of radiation are usually required to kill cancer tissue or normal tissue. So to avert major injury of healthy tissue when it is desired to treat abnormal tissue there must be a dosage differential. Selective uptake is used to control this factor in internal dosage of radioisotopes. The 50% lethal dose to the total body is 450 roentgens or less. In practice the total body dose would need to be kept below 50 roentgens. Consequently the selective absorption of the radiomaterial in the diseased tissue must be greater than is usually attainable. However in applicable cases, by the use of colloidal gold-198 deposited directly into the area being treated, as for instance into the pleural or peritoneal cavity, effective radiation has been attained without excessive exposure of normal tissue. But in diagnostic or research usages, the degree of selective absorption is not a limiting factor from the standpoint of health safety, as extremely small quantities of the radiomaterial are used." A second reason he gives for placing more emphasis on the research aspects is that the radioisotope is more uniquely a tracer than a source of radiation. In many therapeutic applications they are used only as an adjunct to some other method of radiation therapy or chemotherapy.


RADIOACTIVE SODIUM
Na 24 FOR DIFFERENTIATION OF NORMAL & RESTRICTED BLOOD CIRCULATION
Courtesy of A.E.C. Isotopes Division
ADVANTAGES: 1-GIVES PATTERN OF BLOOD FLOW
2-PERMITS EXACT LOCATION OF ARTERIAL CONSTRICTION
3-METHOD QUICK AND NO DISCOMFORT TO PATIENT

Examples of Use in Research

Two examples of radioisotope research work recently appeared in the press: (1) experimental work being done by the U. S. Public Health Service's National Institute of Arthritis and Metabolic Diseases with radioactive cortisone tagged with carbon-14; (2) research by the National Institute of Neurological Diseases and Blindness with radioactive potassium in muscular dystrophy studies.

(Continued on page 377)

ACCIDENTAL POISONING

Kills 1000 Children Annually

IT IS NATURAL for adults to desire safety and protection for children, as is manifested by demands for supervision of street crossings, play areas, etc. Why then do so many children die as a result of accidental poisoning? Certainly this does not occur due to willful neglect but primarily to ignorance of the toxic nature of materials and temporary oversight.

Approximately one thousand deaths occur annually in the United States because of accidental poisoning of children, usually as a result from innocent ingestion of something that was carelessly left or placed where a child could get it. An adult who is nauseated by the thought of drinking kerosene or oil of wintergreen should not assume that a small child will not drink these liquids.

In 1949, Dr. J. M. Arena noted there were twenty-two deaths from polio in North Carolina; while there were seventy deaths due to accidental poisoning of children (1). A report in June, 1953, by the Committee on Accident Prevention of the American Academy of Pediatrics, covering the most recent cases of accidental poisonings showed that medications were responsible for 218 cases or 43 per cent of the total of 507 cases reported. Accidental poisonings caused by aspirin accounted for 88, followed by barbiturates which accounted for 17, and by camphorated oil which accounted for 10 of the poisonings by medications. It is in this particular area that the pharmacist can be most helpful, by advice and warning to the public, in the attempts to reduce accidental poisoning in children. Robert H. Alway of the Department of Pediatrics, Stanford School of Medicine (2), concludes that "Barbiturates, kerosene, salicylates, arsenic, strychnine, and lye appear to be the Big Six in pediatric poisoning." The following are cited by B. E. Conley (3) as typical fatal accidents:

Pesticides

Benzene hexachloride—Ingested insect spray containing BHC 30 per cent in an unspecified solvent.

Sodium fluoride—Ate roach powder.

DDT—Mixed the powder in baby's formula.

Sodium fluoroacetate—Infant drank rodenticide solution from bait cup. Child licked crystals on discarded bottle cap.

Arsenic—Drank syrupy liquid used as ant poison.

Tetraethyl pyrophosphate—Dropped a 4-fl. oz. bottle of T.E.P.P. garden spray, splashing contents on body and clothing.

Naphthalene—Sucked mothballs found in unlocked trunk.

Parathion—Horticultural insecticide bomb was used to spray room in which was a sleeping child and the infant's laundry. Another child sucked a spoon used to mix spray solution.

Phosphorus—Ingested a portion of potato smeared with rodenticide paste.

Drugs and Botanicals

Methadon—Drank half bottle of cough medicine prescribed for father.

Methyl salicylate—Child climbed chair to obtain bottle of oil of wintergreen liniment.

Strychnine—Consumed a number of chocolate-coated pills (aloin, belladonna, strychnine). Another took tablets from mother's purse.

Dramamine—Ingested seven 100-mg. tablets of dimenhydrinate.

Dexedrine—Ate mother's "slimming tablets."

Aspirin—Consumed eight 5-grain tablets found in a drawer.

Thorn apple—Ate 16 grains of thorn apple (atropine and related alkaloids).

Cherry kernels—Ate a quantity of cherry kernels (cyanophoric glucosides).

Phytolacca—Ate salad containing poke weed.

Miscellaneous Household Chemicals

Potassium bromate—Drank neutralizing solution from home cold-wave hair kit.

(Continued on page 384)

MASSENGILL PRESCRIPTION SPECIALTIES

THESE SPECIALTIES HAVE WIDE ACCEPTANCE. BE SURE TO KEEP ADEQUATE STOCKS.

ADRENOSEM

The systemic hemostat 1 cc. 5 mg. Ampuls

1 mg. and 2.5 mg. Tablets–bottles of 50

BRONIACIN

Bromide therapy without bromism.

Tablets: bottles of 100, 1000

Elixir: gallon and pint

SALCEDROX®

Massive salicylate dosage with minimum gastric irritation.

Tablets, bottles of 100 and 1000

MASSENGILL® POWDER

The standard nonirritating acid douche.

Bottles: 3 oz., 6 oz., 1 lb., 5 lb.

SEMHYTEN®

Coordinated therapy for hypertension.

Capsules: Bottles of 100, 500, 1000

to send prescriptions to your pharmacy

MASSENGILL is:

ADVERTISING IN THE LEADING MEDICAL JOURNALS

Over 16 million total circulation of ads for 1954.

PHYSICIAN MAILINGS

Weekly mailings to general practitioners and specialists.

DETAILING

A staff of 346 competent detail salesmen visits physicians regularly in every county in the United States.

FILE CARDS AND LITERATURE AVAILABLE FOR YOUR REFERENCE LIBRARY. ASK YOUR MASSENGILL REPRESENTATIVE OR WRITE TO THE NEAREST BRANCH.

THE S. E. MASSENGILL COMPANY
Bristol, Tennessee

THE S. E. MASSENGILL CO.
507 West 33 rd St.
New York 1, N. Y.

THE S. E. MASSENGILL CO.
208-214 W. Nineteenth St.
Kansas City 8, Mo.

THE S. E. MASSENGILL CO.
250 Fourth Street
San Francisco 3, Calif.

OBEDRIN®

Obesity Control Tablets and the 60-10-70 Diet

Bottles of 100, 500, 1000 tablets

AMINODROX®

Full therapeutic dosage of oral aminophylline.

Tablets Aminodrox and Tablets Aminodrox-Forte, plain or with 1/4 gr. Phenobarbital

Bottles of 100 and 1000

LIVITAMIN®

The iron reconstructive tonic

Liquid: gallons, pints, 8-oz.

Capsules: Bottles of 100, 500, 1000

FROM THE SECRETARY'S DIARY FOR MAY, 1954

1st Early this morning on the way to Philadelphia to attend the meeting of Districts 1 and 2 A.PH.A. Student Branches at the College of Pharmacy of Temple University. A fine program arranged by the officers with special emphasis on opportunities for prescription practice. At luncheon with Robert E. Abrams, secretary of the American College of Apothecaries, discussing many topics of mutual interest. Further sessions of the district meeting in the afternoon and, in the evening, a splendidly arranged dinner in the University's Mitten Hall, where we joined President Johnson and Dean Tice in addressing the assembled student representatives from thirteen colleges.

5th Today in Baltimore with Treasurer Schaefer and the auditors going over the securities in the Baltimore National Bank vault and later conferring with our financial advisers and Dr. H. A. B. Dunning, on ASSOCIATION investment policy. Suggestions are frequently offered to increase the income by investment of ASSOCIATION funds in common stocks, but the By-Laws prevent investment in other than Government securities, which, after all, is in the interest of safety.

6th Today a conference with Surgeon General Armstrong regarding Army policy as to assignments for pharmacists and found him, as usual, very sympathetic with our views and offering constructive suggestions for improving the current situation.

8th A busy Saturday preparing speech and other basic material for committee reports and messages to be delivered on various occasions. Also talking over future plans with Charles C. Rabe, who was a Washington visitor from St. Louis.

12th Today in Indianapolis to address the Butler University Pharmacy Conference and found many practicing pharmacists in attendance eager to learn of the latest developments in Washington and elsewhere. Also an opportunity to talk at some length to members of the Butler University Student Branch about their future.

17th Today in Atlantic City for the Hospital Pharmacy Institute of the Catholic Hospital Association, which is holding its annual convention here. At 3:00 p.m. addressing the members of the Institute and bringing greetings of the A.PH.A. This was a well-attended three-day session for the consideration of many hospital pharmacy problems and for an interchange of procedures and discussion of policies. Ray Kneifl had organized things with his usual efficiency and there was much to learn from the exhibitors at the auditorium, as well as from the faculty of the Institute.

22nd Today the annual meeting of Friends of Historical Pharmacy, which is the A. PH. A. corporation organized to manage the Hugh Mercer Apothecary Shop at Fredericksburg, Va. This shop is well kept and its history is always well told by Mrs. Hamner, the custodian, who devotes the major part of her time to the interests of the Shop.

25th Today on television expounding the services of American pharmacists and the AMERICAN PHARMACEUTICAL ASSOCIATION, and working with local agencies to prepare a short film showing various features of the American Institute of Pharmacy.

26th Among the visitors today was Col. Fleetwood, newly appointed Chief of the Medical Service Corps of the Air Force. A luncheon conference with him revealed that commissions for pharmacists in the Air Force are frozen for the moment, but enlisted pharmacists in this branch of the service will have first chance at any vacancies that may occur or openings which will result from an increase in the Air Force personnel.

27th Today attending a meeting of the Committee on Health Education of the National Health Council in New York and spending considerable time in outlining in detail how the pharmacists of the nation can serve departments of health and voluntary health organizations in promoting their educational programs to the public.

31st Turning out a number of bulletins reflecting recent activities of the ASSOCIATION and to-night listening to President Eisenhower's address at the Columbia University Bicentennial Celebration Banquet, where pharmacy played an important role in that the Alumni Award of the College of Pharmacy was presented to Dr. Arthur Thomas, long active as liaison officer between the College and the University.

you're missing too much too often if you're missing PERITRATE® PROFITS

For the sake of your prescription department income, maintain adequate stocks of Peritrate. It's the biggest selling drug for the prevention of attacks in angina pectoris. The average angina patient will buy 12 to 15 bottles of 100 tablets a year—*that's* repeat business.

Stock Peritrate in the sizes that suit your business, or stock all three sizes *for the most profit.* There isn't another angina *preventive* with a wider acceptance among physicians.

Size	Your cost
100's	$ 2.50
500's	10.00
5000's	80.00

Peritrate® TETRANITRATE

(BRAND OF PENTAERYTHRITOL TETRANITRATE)

WARNER-CHILCOTT *Laboratories,* NEW YORK

EARLY AMERICAN PHARMACIES

BY GEORGE B. GRIFFENHAGEN*

XXV. THE EARLY CALIFORNIA DRUG STORE

Address: Southern California Pharmaceutical Association, 701 South St., Andrews Place, Los Angeles, Calif.

Hours Open: Monday–Saturday: 8:30 A.M. to 4:30 P.M.

Admission: Free.

Floor Space: 20 square feet (wall case).

Owner: Nion Corporation, 1001 North McCadden Place, Los Angeles, California.

History: The pharmaceutical equipment was collected largely from the rich Mother Lode Country in California, the center of activity during the 1849 gold rush. In several of these colorful, gold-rush ghost-towns the original buildings of the earliest apothecary shops have been preserved. As examples, in Columbia, can be found the original building of McChesney and Parsons (1856), while in Murphy's one can read on the original building, "here in Apothecary's Hall, old Doc Jones probed for bullets and dispensed pills and arnica."

The case and fixtures housing this collection of authentic early California pharmaceutical antiques were simulated by Nion Corporation, and the partial restoration was used as a traveling exhibit during 1951. In 1952 it was placed on permanent exhibition in the "Room of Memories" of the Southern California Pharmaceutical Association headquarters.

References: *Pacific Drug Review*, 63, 84, September, 1951. J. Am. Pharm. Assoc., *Pract. Ed.*, **12**, 586, 1951. *West Coast Druggist*, 33, 72, August, 1951. *Drug Trade News*, 26, 2, August 20, 1951.

Description: Wall case stocked with authentic pharmaceutical equipment and drugs of the California '49 gold rush era.

XXVI. THE OLD TEXAS DRUG STORE

Address: Dallas Historical Society, Hall of State, Dallas, Texas.

Hours Open: Monday through Saturday; 9:00 A.M. to 5:00 P.M., Sundays 2:00 P.M. to 6:00 P.M.

Admission: Free.

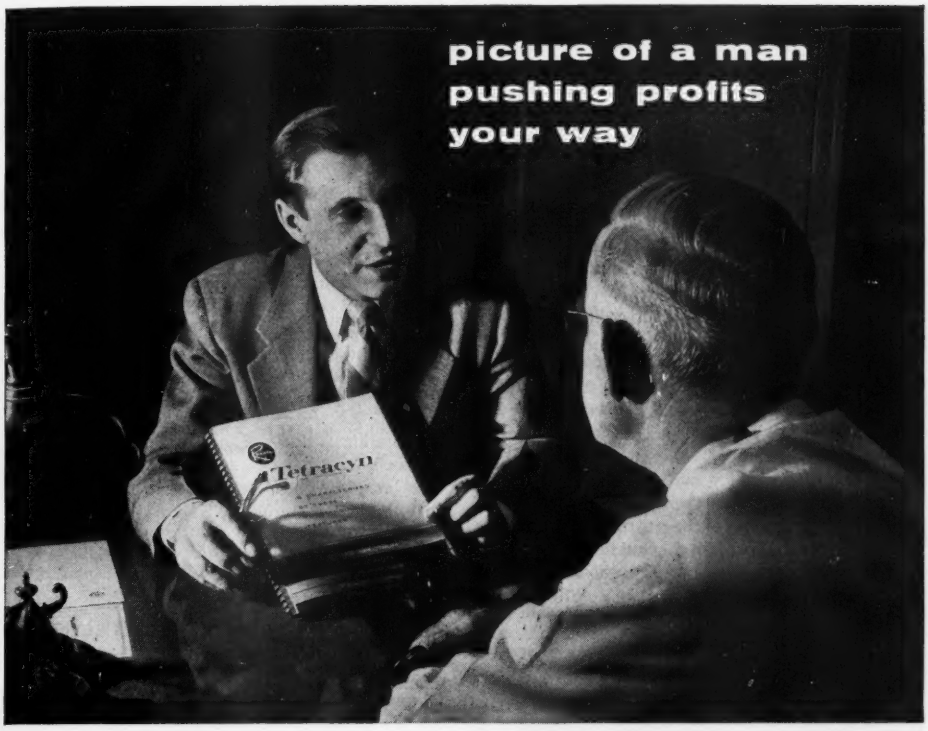
Floor Space: 80 square feet (period room restoration).

Owner: Dallas Historical Society.

History: A collection of early pharmaceutical equipment from various sources. The restoration was opened for exhibition in 1940.

Description: A prescription counter and shelves partially stocked representing a Texas drug store of the period 1890.

* Associate Curator, Division of Medicine and Public Health, Smithsonian Institution, Washington, D.C., and Consultant to the A.Ph.A. Museum. The 25th and 26th of a series of monographs describing apothecary shop restorations on exhibition in the United States.



This is a Roerig Professional Service Representative... one of the hundreds of top men who right now, with the help of an intensive advertising campaign, are devoting their time exclusively to telling *your* doctors about the remarkable benefits of the newest broad-spectrum antibiotic, Tetracyn. And the doctors are listening and *prescribing* as never before, because Tetracyn is not only effective in a wide range of common infections, it is *well* tolerated by patients in all age groups. Yes, the man is pushing for you. Be ready for steadily increasing sales!

Tetracyn

Brand of **tetracycline** hydrochloride

have these dosage forms in stock:

tablets *(sugar coated)*
250 mg., bottles of 16 and 100
100 mg., bottles of 25 and 100
50 mg., bottles of 25 and 100

oral suspension
(amphoteric) (chocolate flavored)
1 fl. oz., bottles of 1.5 Gm.

intravenous
Vials of 250 mg. and 500 mg.

ointment *(topical)*
30 mg./gram, ½ oz. and 1 oz. tubes.

ROERIG Rx

BASIC PHARMACEUTICALS FOR NEEDS BASIC TO MEDICINE

536 Lake Shore Drive, Chicago 11, Illinois

℞ Information Service

• • • • • • • • • • • • • • *from page 326*

Buffers in Parenterals

Can you supply sources of information on buffers in parenteral solutions?—B. J. M., Missouri.

The action of buffers on blood is discussed in an article "Injections for Acidosis" by Don E. Francke in the *Bulletin of the American Society of Hospital Pharmacists*, 2, 104(1945). Buffers in Parenteral Solutions are discussed in the textbook "The Art of Compounding" by G. L. Jenkins, D. E. Francke, Edward A. Brecht, and G. J. Sperandio, the Blakiston Co., Philadelphia (8th ed., 1951). The following statement in "A Manual of Pharmacology" by Torald Sollmann, W. B. Saunders Co., p. 848, 1948, Philadelphia, Pa., is significant: "It is relatively difficult to alter the reaction (*p*H) of blood even *in vitro* (outside the body)."

Selection of a buffer would depend upon the desired *p*H, chemical and therapeutic compatibility with the drug, the effect of the treatment for sterilization upon the buffer and the mixture, and other factors. Only experimental, storage, and clinical tests could supply definite answers.

For you—

THE DRUGGISTS OF AMERICA

A service for druggists only—
No one else can have it.
Worthy of your inquiry.

Consult Our Agent

Lotion Containing 30 Per Cent Alcohol

Can you supply a formula for a lotion containing 30% alcohol? Addition of the alcohol cracks the emulsions made with starches and gums.—A. C. S., New York.

Have you tried methylcellulose or sodium carboxymethylcellulose as suspending agents? Methylcellulose solution is miscible with alcohol, especially if the alcohol is first diluted with water. See THIS JOURNAL, **14,** 111(Feb., 1953); particularly paragraph 3, column 2, page 112.

Cronk and Zopf reported in THIS JOURNAL, **14,** 302 (May, 1953), on the compatibility of hydroxyethyl starches and they included the following formula for a zinc oxide lotion containing 35% of alcohol:

ZINC OXIDE LOTION

Zinc oxide	10
Alcohol 95%	35
Polyethylene glycol 400	4
Hydroxyethyl starch CWS	3
Distilled water, *q. s.*	100

Sources of Materials

Where can materials such as methyl alkyl benzyl trimethyl ammonium chloride, isopropyl palmitate, denatured alcohol, be obtained?—R. E. T., Tennessee.

Methyl alkyl benzyl trimethyl ammonium chloride is obviously a surface-active quaternary ammonium compound of which there are a large number on the market at the present time. An example of such a compound is Zephiran chloride (benzalkonium chloride U.S.P.). We have been unable to find the benzyl trimethyl ammonium chloride mentioned in your letter listed in any catalogues available to us. There are, however, a large number of dealers in quaternary ammonium compounds among which are McKesson and Robbins, Chemical Department, 155 E. 44th St., New York 17, N. Y.; Fine Organics, Inc., 211 E. 19th St., New York 3, N. Y.; and R. F. Revson Co., 243 W. 17th St., New York 11, N. Y.

You can obtain Isopropyl Palmitate from McKesson and Robbins; Givaudan Delawanna, Inc., 330 W. 42nd St., New York 36, N. Y.; and R. F. Revson Co.

Special denatured alcohol may also be obtained either from McKesson and Robbins, or, in larger quantities, from Publicker Industries, Inc., 1429 Walnut St., Philadelphia 2, Pa. Before ordering specially denatured alcohol, you should decide upon a formula of which there are around 50 listed. You can obtain formulas for the several specially denatured alcohols by requesting a copy of the Appendix of Regulation No. 3 from the U. S. Treasury Department, Internal Revenue Service, Alcohol Tax Unit, Washington 25, D. C.

N. N. R.

• • • • • • • • • • • • *from page 334*

OXYTETRACYCLINE-POLYMYXIN B for a mixture of oxytetracycline hydrochloride and polymyxin B sulfate: Terramycin Hydrochloride with Polymyxin B Sulfate (Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc.)

PENTHIENATE BROMIDE for 2-diethylaminoethyl 2-cyclopentyl-2-(2-thienyl)-hydroxyacetate methobromide: Monodral Bromide (Winthrop-Stearns, Inc.)

POLYVIDONE for polyvinylpyrrolidone: Vinisil (Abbott Laboratories)

PRETHCAMIDE for a mixture of crotethamide and cropropamide: Micoren (Geigy Pharmaceuticals, Division of Geigy Company, Inc.)

PROPOXYCAINE HYDROCHLORIDE for 2-diethylaminoethyl 4-amino-2-propoxybenzoate hydrochloride: Ravocaine Hydrochloride (Winthrop-Stearns, Inc.)

SALICYLAMIDE for *o*-hydroxybenzamide

STYRONATE RESINS for a mixture of ammonium polystyrenesulfonate 75% and potassium polystyrenesulfonate 25%: Katonium (Winthrop-Stearns, Inc.)

SULFAPROXYLINE for N_1-(4-isopropoxybenzoyl)-*p*-aminobenzenesulfonamide

TETRACYCLINE HYDROCHLORIDE for the hydrochloride salt of 4-dimethylamino-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,-11,-dioxo-2-naphthacenecarboxamide: Achromycin Hydrochloride (Lederle Laboratories Division, American Cyanamid Company); Tetracyn Hydrochloride (J. B. Roerig and Company)

THENYLDIAMINE HYDROCHLORIDE for N,N,-dimethyl-N′-(3-thenyl)-N′-(2-pyridyl)-ethylenediamine hydrochloride: Thenfadil Hydrochloride (Winthrop-Stearns, Inc.)

ADDITIONAL ARTICLES ACCEPTED FOR ADMISSION TO N.N.R.

Ascorbic Acid—U.S.P.—*Tablets Ascorbic Acid:* 25-50-, and 100-mg. The Evron Co., Chicago.

Cortisone Acetate—*Ophthalmic Ointment Cortisone Acetate:* 3.9-Gm. tubes. An ointment containing 15 mg. of cortisone acetate in each Gm. The Upjohn Co., Kalamazoo, Mich.

Diethylstilbestrol-U.S.P.—*Tablets Diethylstilbestrol:* 1- and 5-mg. The Evron Co., Chicago.

Estrone-U.S.P.—*Solution Estrone in Oil with Benzyl Alcohol 2%:* 15-cc. vials. A solution in sesame oil containing 1 mg. of estrone in each cc. *Suspension Estrone with Benzyl Alcohol 2%:* 10-cc. vials. An aqueous suspension containing 2 mg. of estrone in each cc. Lincoln Laboratories, Inc., Decatur, Ill.

Fructose—*Solution Levugen 10% in Saline:* 1-liter bottles. A solution containing 0.1 Gm. of fructose and 9 mg. of sodium chloride in each cc. Mead Johnson & Co., Evansville, Ind.

Heparin Sodium-U.S.P.—*Solution Heparin Sodium:* 4-cc. vials. A solution containing 10,000 U.S.P. units (approximately 100 mg.) of heparin sodium in each cc. Preserved with 0.5% phenol. Testagar & Co., Inc., Detroit.

Hexobarbital Sodium—*Powder Evipal Sodium:* 5-Gm. ampuls. U. S. patent 1,947,944. U. S. trademark 315,515. Winthrop-Stearns, Inc., New York.

Meth-Dia-Mer-Sulfonamides—

Tablets Sulfa-Ter: 0.5-Gm. Each tablet contains 0.167 Gm. each of sulfadiazine, sulfamerazine, and sulfamethazine. American Pharmaceutical Co., New York.

Pediatabs Palatrizine: 0.125-Gm. Each tablet contains 42 mg. each of sulfadiazine, sulfamerazine, and sulfamethazine. The Columbus Pharmacal Co. Columbus, Ohio.

Tablets Sulfa-Trio: 0.5-Gm. Each tablet contains 0.167 Gm. each of sulfadiazine, sulfamerazine, and sulfamethazine. Rexall Drug Co., Los Angeles.

Nitrofurantoin—*Suspension Furadantin (Pediatric):* 118-cc. bottles. A flavored suspension containing 5 mg. of nitrofurantoin in each cc. Preserved with 0.1% methylparaben. U. S. patent 2,610,181. U. S. trademark 569,968. Eaton Laboratories, Inc., Norwich, N. Y.

NEW!
LULLAMIN* DROPS
Non-Barbiturate Sedative for Pediatric Use

New, drop-dosage sedative is free of bromides, barbiturates and narcotics. Combats irritability and sleeplessness in infants and children —flavored to appeal to their taste.

Ethically promoted by detailing, journal advertising and mail. In 25 cc. bottles with calibrated dropper.

*T.M. ***STOCK IT NOW!***

REED & CARNRICK
JERSEY CITY 6, N. J.

MERCK Rx BOTTLES

Prescription Department the

★ ATTRACTIVE ★ WORKABLE ★ ECONOMICAL

Thousands of pharmacists have modernized their prescription departments with the unique MERCK Prescription sets. This is *your* opportunity to add to the professional appearance of your pharmacy. Just look at these advantages:

Dual "Fused-label"—actually part of the glass itself; moistureproof, heatproof, dirtproof—not affected by wear and tear. Legible lettering, professional appearance.

Handgrasp Duraglas® bottles—tough, round, easy to clasp and easy to pour from—conveniently arranged in four different sets. Amber color protects light-sensitive chemicals.

Special closures—all bottles supplied with tight-fitting, but easily removable plastic caps that have inner linings, with special linings for certain chemicals.

Bottles supplied empty—no additional stock to buy; just fill with MERCK PRESCRIPTION CHEMICALS on hand. Order today. For list of sets, *see* facing page.

MODERNIZE YOUR PRESCRIPTION DEPARTMENT AT NOMINAL COST

Here's a tested and economical way to improve the professional appearance and compounding efficiency of your prescription department. Thousands of pharmacists have reaped these twin benefits by using and displaying the MERCK *Fused-label Bottles*. With the working labels facing the prescription laboratory, you see name, form, and other essential data that facilitate compounding. Your customers see a modern, uniform display label that heightens the professional appearance of your pharmacy. It will pay you to act today.

HOW TO ORDER:

1. The new MERCK *Fused-label Bottles* are supplied empty—no unnecessary stocking is required. 2. Sets have been grouped according to frequency of use. 3. Bottles are not available singly except as replacements in case of breakage or loss. 4. Orders will be accepted *now* for any or all sets. 5. Sets may be ordered for direct shipment by Merck & Co., Inc. from Rahway, N. J., St. Louis, Mo., or Los Angeles, Calif., with invoicing through your wholesaler. Write today. Or place your order with your wholesaler's salesman.

LESETS Give Your the Professional "NEW LOOK"

SET A—250 cc. $3.00

Acetophenetidin U.S.P. Powd.
Acid Acetylsalicylic U.S.P. Powd.
Acid Boric U.S.P. Powd.
Ammonium Chloride U.S.P. Gran.
Bismuth Subnitrate N.F.
Calcium Carbonate Precip. U.S.P.
Calcium Phos. Tribasic N.F. Precip.
Chloral Hydrate U.S.P. Loose Cryst.
Dextrose U.S.P.
Ephedrine Hydrochloride U.S.P.
Magnesium Oxide Heavy U.S.P.
Milk Sugar U.S.P. Powd.
Potassium Citrate N.F. Gran.
Potassium Iodide U.S.P. Gran.
Potassium Permanganate U.S.P. Gran.
Sodium Bicarbonate U.S.P. Powd.
Sodium Bromide U.S.P. Gran.
Sodium Chloride U.S.P. Gran.
Sodium Citrate U.S.P.
Sodium Salicylate U.S.P. Cryst. Free-Flowing
Sodium Sulfate U.S.P. Gran.
Sulfanilamide U.S.P. Not Sterilized
Talc U.S.P.
Zinc Oxide U.S.P.
Zinc Sulfate U.S.P. Gran.

SET B—250 cc. $3.00

Acid Citric U.S.P. Gran.
Acid Salicylic U.S.P. Fine Cryst.
Acid Tannic N.F. Fluffy
Acid Tartaric U.S.P. Powd.
Ammonium Carbonate U.S.P. Chips
Bismuth Subcarbonate U.S.P.
Calamine N.F.
Calcium Gluconate U.S.P.
Calcium Lactate U.S.P. Powd.
Calcium Phosphate Dibasic U.S.P.
Choline Chloride
Kaolin Colloidal N.F.
Lead Acetate N.F. Gran.
Magnesium Carbonate U.S.P. Powd.
Magnesium Carbonate U.S.P. Heavy Powd.
Magnesium Oxide U.S.P. Light Powd.
Magnesium Trisilicate U.S.P.
Potassium Bromide U.S.P. Gran.
Quinine Sulfate U.S.P.
Saccharin Sodium U.S.P. Powd.
Sodium Benzoate U.S.P. Powd.
Sodium Thiosulfate N.F. Cryst.
Strontium Bromide N.F. Cryst.
Sulfathiazole U.S.P. Not Sterilized
Sulfur U.S.P. Precip.

SET C—250 cc. $3.00

Acetanilid U.S.P. Powd.
Acid Benzoic U.S.P. Cryst.
Aluminum Chloride N.F.
Aminophylline U.S.P.
Aminopyrine U.S.P. Powd.
Ammonium Bromide N.F. Gran.
Bismuth Subgallate N.F.
Caffeine Citrated N.F.
Calcium Bromide N.F.
Calomel N.F.
Ephedrine Sulfate U.S.P. Cryst.
Hexamethylenamine U.S.P.—No. 30 Mesh
Phenobarbital U.S.P.
Phenobarbital Sodium U.S.P.
Potassa Sulfurated N.F.
Potassium Acetate N.F.
Potassium Chlorate N.F. Gran.
Potassium Guaiacol Sulfonate N.F.
Quinine Bisulfate N.F. Cryst.
Quinine Hydrochloride U.S.P.
Resorcin U.S.P. Recrystallized
Salol N.F. Gran.
Silver Nitrate C.P. Cryst.
Sulfathiazole Sodium U.S.P. Not Sterilized
Zinc Chloride N.F. Gran.

SET D—250 cc. $3.00

Activated Charcoal N.F. Powd.
Antipyrine N.F.
Benzocaine U.S.P. Fine Powd.
Camphor Monobromated N.F. Cryst.
Cerium Oxalate N.F.
Cinchophen N.F.
Copper Sulfate U.S.P. Cryst.
Guaiacol Carbonate N.F. VII
Iron by Hydrogen N.F.
Iron Sulfate (Ferrous) U.S.P. Cryst.
Iron & Ammon. Citrate U.S.P. Brown Pearls
Mercury Ammoniated U.S.P. Powd.
Pepsin N.F. Powd.
Potassium Bicarbonate U.S.P. Gran.
Potassium Bitartrate N.F. Powd.
Potassium Chloride U.S.P. Cryst.
Potassium Thiocyanate N.F. Cryst.
Quinidine Sulfate U.S.P.
Silver Protein Mild N.F.
Sodium Iodide U.S.P.
Terpin Hydrate N.F. Powd.
Theobromine N.F.
Theobromine Sodio-Salicylate N.F.
Thymol N.F.
Thymol Iodide N.F. Powd.

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY

© Merck & Co., Inc.

MERCK & CO., INC., *Manufacturing Chemists*, RAHWAY, N. J.

Gentlemen: Please send me chemical bottle sets checked below:

☐ Set A ☐ Set B ☐ Set C ☐ Set D

Wholesaler's name.....

Wholesaler's Salesman.....

Name or store label.....

Street.....

City.....*Zone*.....*State*.....

Hospital Pharmacy

Hospital Improvised for Emergency

To meet the shortage of hospital facilities in the event of enemy attack, a 200-bed hospital has been designed by the Federal Civil Defense Administration. The unit, requiring approximately 15,000 square feet, can be set up in about four hours by about 30 professionals and semitrained auxiliaries, with untrained volunteers helping. It may be relocated if secondary enemy strikes are made. Manning the hospital would require a team of 10 physicians, 20 graduate nurses, 125 trained auxiliaries, such as nurse aides, and 75 untrained auxiliaries.

This hospital is intended to provide early hospitalization of seriously sick and injured casualties in or as close as possible to the stricken area for lifesaving initial and reparative treatment and emergency surgery. It can be used in a natural disaster as well as after enemy attack.

The hospital includes some 288 different types of equipment, such as five folding operating tables, a portable field X-ray unit, 200 folding canvas cots, plus sheets, blankets and pillows; surgical knives, forceps, probes, retractors, scissors, sponges, sutures, anesthesia, antiseptics, antibiotics, bandages, dressings, tourniquets, etc. Enough expendable supplies, such as drugs, medicines, and dressings, are included for the first 36 to 48 hours of operation. These would be replaced from nearby sources. In addition to all the essentials of any modern hospital, the unit includes a Pharmacy.

VA Residency Program

The Veterans Administration has announced plans for continuation of the Pharmacy Residency Program with a new class of residents in one or more of the VA Hospitals. The program, first inaugurated at the VA Center in Los Angeles, requires a minimum residency of two years with approximately half of the time spent on duty in VA hospitals and the remainder in graduate studies at a university leading to the Master of Science degree in Pharmacy, with a major in hospital pharmacy.

Selection of residents is by unassembled Civil Service examination. Announcements of the examination (pharmacy resident) are available in first and second class post offices. Applicants should file a form 57 (application form) with the Executive Secretary, Central Board of United States Civil Service Examiners, Veterans Administration, Washington 25, D. C., not later than June 30, 1954, to be considered for the residency beginning on or about September 1, 1954.

Applicants must have a B.S. degree and must be currently registered as pharmacists. Undergraduates may apply before graduation, but must submit proof of graduation and registration before they can be appointed. Applicants also must satisfy the admission requirements of the graduate college of the university in which the academic work is to be taken.

Pharmacists in Hospitals

According to the Hospital Number of the *J. Am. Med. Assoc.* (May 15, 1954), there are 6,840 registered hospitals in the United States. Of this number, 4,079 reported the services of a full-time pharmacist and 653 have part-time pharmacists. These pharmacists are practicing in the following types of institutions:

General Hospitals	3,969
Psychiatric Institutions	348
Tuberculosis	156
Other Hospitals	259

Texas Seminar

Approximately 80 hospital pharmacists from Texas and neighboring states attended the Sixth Annual Hospital Pharmacy Seminar sponsored by the College of Pharmacy and the Division of Extension at the University of Texas in cooperation with the state hospital pharmacy organization. The program was tailored to meet the professional and administrative needs of hospital pharmacists, administrators, and allied groups. The meeting consisted of a systematic presentation of lectures and training which would promote an overall, well-balanced, and properly integrated hospital care program for local communities.

Also meeting in conjunction with the Texas Seminar was the Texas Society of Hospital Pharmacists headed by Miss Adela Schneider, chief pharmacist at the Southern Pacific Hospital, Houston.

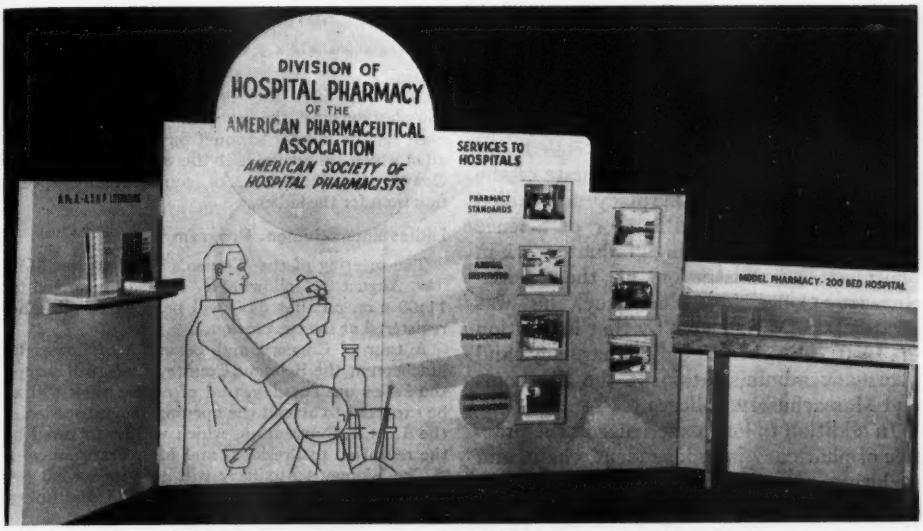


Exhibit Sponsored by the Division of Hospital Pharmacy

C.H.A. Convention and Institute

The Division of Hospital Pharmacy of the AMERICAN PHARMACEUTICAL ASSOCIATION and the American Society of Hospital Pharmacists sponsored an exhibit at the Annual Convention of the Catholic Hospital Association held in Atlantic City, N. J., May 17–20. Illustrating the Association's services to hospitals, the exhibit included the Model Hospital Pharmacy and literature which is available through the Division. It emphasizes the Division's role in providing the annual institutes, various publications on hospital pharmacy, and information services. Members of the hospital pharmacists' organizations in New Jersey and Philadelphia, Pa., were present at the booth throughout the week to answer questions raised by hospital administrators, as well as pharmacists and other personnel.

Carrying out the theme of the Convention—*Fulfilling the Objectives of the Catholic Hospital*—the hospital pharmacists participated in the Sixth Annual Institute sponsored by the C.H.A. in cooperation with the A.PH.A. and A.S.H.P. The three-day program included national figures in pharmacy and covered problems of particular interest to those practicing in hospitals. Greetings from the A.PH.A. were brought by Secretary Robert P. Fischelis and from the A.S.H.P. by President Allen V. R. Beck.

One of the highlights of the Institute was a "Review of New Drugs" by Dr. Paul Wermer of the American Medical Association's Council on Pharmacy and Chemistry. Devoting an entire morning session to this subject, new developments in therapeutics and the status of certain investigational drugs were discussed. In a similar vein was a talk on "Pharmaceutical Properties of Isotopes" by Dr. Jesse D. Perkinson, Jr., of the Department of Biochemistry, University of Tennessee, Memphis. He made specific reference to radioisotopes now being used in medical practice and the necessary precautions for handling these products, as well as methods of calculating dosage on the basis of the half-life of the isotope being used.

Also of practical application to the hospital pharmacists were the discussions on hospital formularies, purchasing, equipment planning, pricing, bulk compounding, and the function and responsibility of the individual pharmacy committee members.

At the final session, each enrollee at the Institute was presented a certificate by The Very Reverend Monsignor R. A. Maher, first vice-president of the Catholic Hospital Association.

The C.H.A. Institute is in charge of the Association's Committee on Hospital Pharmacy Practice which, during the past year, was headed by Sister Mary Berenice, St. Mary's Hospital, St. Louis, Mo. A member of the Committee since its organization a number of years ago, Sister Berenice has contributed immeasurably toward progress in hospital pharmacy through her services in the Catholic Hospital Association as well as in the A.PH.A. and A.S.H.P. On retiring from the Committee, she was praised for her many contributions. Succeeding to the chairmanship is Sister Mary Ancilla, St. Joseph's Hospital, Hamilton, Ontario, Canada. Other members are: Sister Mary Blanche, Sacred Heart Sanitarium, Milwaukee, Wis.; Sister Marian, Sister of Charity of St. Elizabeth, St. Elizabeth's Hospital, Elizabeth, N. J.,; Sister M. Franciscana, St. Joseph's Hospital, Memphis, Tenn.; and Sister M. Cherubim, St. Joseph's Hospital, Joliet, Ill.

Straight from Headquarters

• • • • • • • • • • • • • • • from page 343

Professor Rabe brings to his new duties a diversified experience in retail, professional, and industrial pharmacy. He attended Valparaiso University and is a graduate of the St. Louis College of Pharmacy and Allied Science, receiving the Bachelor of Science degree in 1939. Following graduate work in pharmacy administration at the Massachusetts College of Pharmacy, he was awarded the M.S. degree by that institution in 1950. He has taught pharmacy and pharmacy administration at the St. Louis and Massachusetts colleges.

In addition to long experience in the practice of pharmacy in independent, chain, and exclusive prescription pharmacies, he has also had sales experience with Sharp & Dohme and Warner-Hudnut Company. His researches and surveys on prescription economics, leading to publications on marketing drug products and detailing, are well known. During the decade of his association with the St. Louis College of Pharmacy, he has been active in promoting public relations and alumni affairs.

He is chairman of the Conference of Teachers of Pharmacy Administration of the American Association of Colleges of Pharmacy, and serves as a member of the A.PH.A. Committee on Prescription Tolerances and the Committee on Social and Economic Relations. He is a member of Rho Chi and Kappa Psi Fraternities.

Professor Rabe is married and has two daughters. Mrs. Rabe is also a registered pharmacist. She is a graduate of the College of Pharmacy of Ohio State University.

How About Toothbrushes?

An impartial investigation of toothbrushes now on the market is long overdue and should be very revealing. Pharmacists have a stake in this matter because toothbrushes have long since become the subject of all kinds of deals and there is very little opportunity for a pharmacist to advise his clients honestly on the value of some of these brushes because impartial evaluation of the bristle and the method of manufacture are not available. Here is an opportunity for cooperative research between pharmacy and dentistry in the interest of the public.

A.PH.A. Convention Program

• • • • • • • • • • • • • • • from page 345

Sunday evening, the President's Reception on Tuesday evening, the group dinners on Wednesday evening, the annual banquet on Thursday evening, all of which are available to those who register at the Convention, there are, of course, many special functions for the ladies.

Ladies Entertainment Program

The meeting of the Women's Auxiliary on Monday, August 23, following a "brunch" arranged for 11:00 a.m. on that day, will be open to all ladies registered at the convention.

A tour of Concord and Lexington, followed by luncheon at the Belmont Country Club, will occupy the ladies on Tuesday, and of course they will all be expected to attend the opening general session of the A.PH.A. Convention, which will be followed by the reception to President and Mrs. Franzoni.

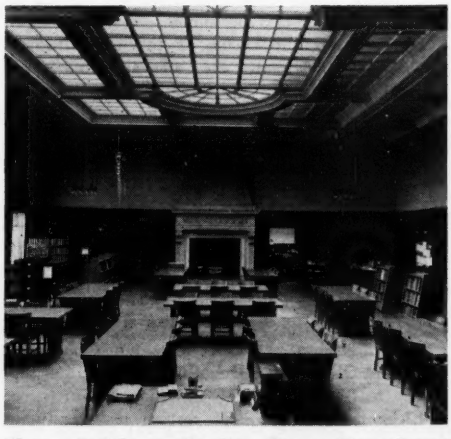
The Women's Auxiliary will hold its second session on Wednesday morning, August 25, and tickets to summer theaters will be available to them for the afternoon.

On Thursday, August 26, a city bus tour, continuing to the North Shore and including a luncheon at the new Ocean House at Swampscott, followed by a fashion show, together with the annual banquet in the evening, will complete a busy day.

On Friday, a boat trip on the Charles River, permitting views of Harvard University and other spots of interest, will occupy part of the day, leaving some time for shopping and sightseeing, arranged to suit individual tastes.

Mrs. M. G. Brudno is the chairman of the Ladies' Entertainment Committee and Mrs. Doris Kelley is president of the Women's Auxiliary.

The Executive Committee of the Boston Convention Committee, which has these arrangements in charge, consists of Samuel M. Best and Martin E. Adamo, co-chairmen, John E. S. Cusick, Howard C. Newton, Wilford Chagnon, M. G. Brudno, Louis J. Rossetti, O. L. Rafuse, Edward A. Loring, and Samuel Silverman.



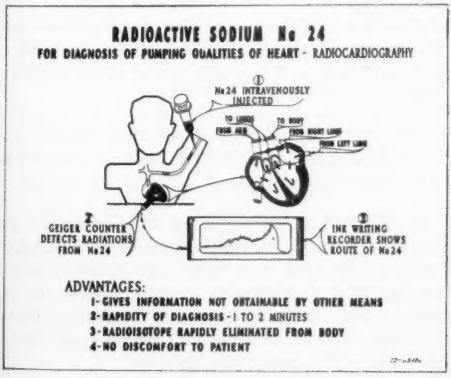
Sheppard Library Reading Room, Massachusetts College of Pharmacy, Boston, Mass.

Radioisotope Therapy

• • • • • • • • • • • • • *from page 363*

The following information is given in a paper released by the Abbott Research Laboratories on the subject "Mechanical Tracing":

1. One of the earliest uses of radioisotopes in pharmaceutical problems was the testing of enteric coatings of tablets and capsules. A radioactive salt (Na-24Cl) was incorporated in the tablet or capsule. The time of disintegration of the tablet, i.e., the coating, as evidenced by the appearance of radioactivity in the circulation was a measure of the coating's efficiency.
2. Comparison of the absorption of radioactive NaI from 37 different ointment bases.
3. Teeth of rats were made radioactive and the effect of various mouthwashes observed.
4. Detergents containing S-35 were prepared and applied to skin of patients and the amount remaining on the skin determined.
5. Radioautographic methods have been developed for determining the particle size of radioactive aerosols containing an alpha emitter.
6. Mosquitos have been tagged by P-32 by growing the larvae on solutions of appropriate concentrations. For whatever it may prove, the females showed twice as much radioactivity as the males. Knowing the activity per mosquito and measuring the activity per "trap" sufficed to determine the extent of migration from various areas.
7. Silkworms injected with radioactive nutrients secrete radioactive silk.


RADIOACTIVE SODIUM Na 24
FOR DIAGNOSIS OF PUMPING QUALITIES OF HEART - RADIOCARDIOGRAPHY
1
Na24 INTRAVENOUSLY INJECTED
TO LUNGS FROM HEART
TO BODY FROM RIGHT LUNG FROM LEFT LUNG
2
GEIGER COUNTER DETECTS RADIATIONS FROM Na24
3
INK WRITING RECORDER SHOWS ROUTE OF Na24
ADVANTAGES:
1- GIVES INFORMATION NOT OBTAINABLE BY OTHER MEANS
2-RAPIDITY OF DIAGNOSIS - 1 TO 2 MINUTES
3-RADIOISOTOPE RAPIDLY ELIMINATED FROM BODY
4-NO DISCOMFORT TO PATIENT

Securing an Allocation

In order to obtain an allocation of radioactive material, applications are made to the Isotopes Committee, Atomic Energy Commission, Oak Ridge, Tenn., on their form #313. The application should contain ample information since it is upon this basis that acceptance or rejection is made. If human use is involved, very specific data on the types of patients and minimum and maximum dosages should be stated. Also there must be a letter bearing the formal approval of the hospital's isotope committee for the project. A prerequisite is the signature by a responsible official of the institution on the form "Acceptance of Terms and Conditions for Order and Receipt of Radioactive By-product Materials." Strict record keeping is essential and the duties and legal responsibilities of the user of isotopes are not to be taken lightly. The number and date of expiration shown on the authorization Form 374 for an allocation must appear on all subsequent orders and correspondence prior to expiration either in amount or time (six months from issuance).

FDA Regulations

Radioisotopes are classified as new drugs and the user must sign a "Certificate of Compliance" (Form 465) with the Federal Food and Drug Administration. These two forms (374 and 465) together with a formal purchase order for a specified number of millicuries (or units) are sent to the supplier designated on the authorization. Shipments and use may then begin.

Abbott Isotope Service

The radioisotope service of the Abbott Laboratories obviates the necessity for installing and maintaining the complete facilities outlined above for handling "stock" radioisotopes from the Atomic Energy Commission by making available not only the isotopes themselves but many derivatives, chemical combinations, and colloidal preparations derived from those isotopes of interest in medicine. The AEC has materially liberalized procurement regulations if purchase is made from these suppliers in the form of calibrated sterile solutions. Materials coming from Oak Ridge are not sterile, have not been tested for pyrogens, and vary greatly in specific activity from batch to batch. Every pharmacist will appreciate that to identify, dilute accurately, buffer if necessary, assay, test for pyrogens, and sterilize solutions prior to use necessitates the maintenance of a "hot laboratory" (separated physically from assay and therapy rooms) and specially trained personnel. If this therapy is not extensive in a hospital, obviously it would not be economical to maintain such a facility. Abbott's "hot-lab" isotope processing is designed for this situation. Frequently shipments can be made on one hour's notice. Special delivery to airport and use of air-express permits next morning delivery. Small shipments from 25–30 mc. to as few as 2–3 mc. for a single case are made in compact, hermetically sealed, shielded containers. The order may specify a given dosage to be present on the expected day of administration (the rate of emanations and elapsed time form the basis for calculating activity at time of shipment).

Medication Ready for Use

The contents being sterile and of known assay, the unit is taken directly to the point of administration; all or part of the contents is withdrawn by a syringe without opening the container or removing it from the lead shield. The container may then be simply set aside in a safe place until decay has brought any residual activity to the level recommended by the AEC for ordinary disposal.

STUDENT BRANCHES

Allen Beck, chief pharmacist, Indiana University Medical Center, and president, American Society of Hospital Pharmacists, was guest speaker at a recent meeting of the **Purdue University Branch.**

The University of Buffalo Branch enjoyed an attendance of some 180 at its April 1 meeting. Branch President Charles I. Cole officiated, and guest speaker was Dr. David Nichols, of the Roswell Park Institute, N.Y., who discussed "Cancer, As It Pertains to Pharmacists and Physicians." Newly-elected Branch officers are: James Connors, president; Spence Bickle, vice-president; Barbara Myka, secretary; and Ronald Ernewein, treasurer.

Kenneth Relyea has been elected president of the **Ohio Northern University Branch.** Other new officers are: Zane Bailey, vice-president; William Finical, secretary; Herbert Lawson, treasurer.

New officers of the **University of South Carolina Branch** are: President, George Inman; Vice-President, William Buckner; Secretary, Johanna Wright; and Treasurer, Jack Watts.

President James B. Leedy presided over the April 1 meeting of the **Philadelphia College of Pharmacy and Science Branch.** Dr. Edgar Smith, instructor in physiology at the College, spoke on "The Pharmacist's Relationship with the Physician." Officers elected for the 1954–1955 term are Vincent Motsavage, president; Ted Myers, vice-president; Mary Jo Dooley, secretary, and Richard Oski, treasurer.

The **Fordham University Branch** reports that 150 students attended the April 12 meeting. President James N. Robertson presided. Guest speakers were Joseph J. Geagan and Robert C. Donovan of the Owens-Illinois Glass Co., Inc. Their topic was "Elegance of Prescription."

The final meeting for the school year of the **Fordham University Branch** was held on May 10, President James N. Robertson presiding. Principal speaker was Frank J. Smith, chief of the Narcotic Control Section of the New York State Department of Health, who addressed the gathering on "Narcotics and Pharmacy." Approximately 150 members were present in addition to a number of guests from the senior class.

The **University of Connecticut Branch** has elected the following officers for the coming year: Wallace Leete, president; Nat Fresilli, vice-president; Ray Yamachika, treasurer; Fenna Lee Fisher, recording secretary; Biruta Zilmanis, corresponding secretary; and W. R. Williams, faculty adviser.

"Pharmacy Open House" presented by the **University of Florida Branch** was a big success. With over 3,500 in attendance during the four-day period, April 8–11, the public viewed exhibits and demonstrations designed to better acquaint them with the various aspects of the students' training received at the College of Pharmacy. Jim Grinaker was chairman of the open house and Jerry Schine was in charge of publicity. Dr. Dale D. Archer, associate director of clinical research at Lederle Laboratories, was guest speaker at the April 12 joint meeting of the Branch and Alpha Epsilon Delta and Pi Mu, premedical societies. Dr. Archer spoke on the "Relationship of the Physician, Pharmacist, and the Drug Manufacturer." He stressed the importance of the physician's and pharmacist's explaining to patients the cost of research and development of drugs in answer to the question "Why does my prescription cost so much?"

The **University of Arizona Branch** held its last business meeting of the term, April 10. Dick Glassock presided over the meeting and stated that a delegation from the University of Southern California would be in Tucson for the District meeting of the A.PH.A. Stan Farber was elected delegate to the National Convention in Boston. Dr. Paul Olson spoke on "How to Become Successful in the Medical Representative Field."

The **University of Michigan Branch** sent James Richards and Richard Allen to the District meeting at Purdue University, April 7–9.

Dr. Richard A. Deno was the featured speaker at the May meeting of the **University of Michigan Branch.** His topic was "Revision of the U. S. P. and the N. F." Following are the new officers of the Branch: President, James Richards; Vice-President, Rolland Zagnoli; Secretary, Vicki Middleton; Treasurer, Kay Osborn.

The **University of Toledo Branch** elected new officers at a meeting on April 5, presided over by Bea Appleman. They were: Fred Frey, president; Bernie Margolis, vice-president; Harry Thom, secretary; Ron Kunes, treasurer, and Robert G. Wallich, sergeant-at-arms.

At its meeting held April 28, the **University of Minnesota Branch** approved the resolution creating a student section within the framework of the A.PH.A.

President T. N. T. Olson of the **University of Minnesota Branch** officiated at a meeting held May 12. Earl A. Schwerman, secretary, reports that Dr. George Mather, professor of veterinary medicine, was the guest speaker and discussed "Veterinary-Pharmacist Relations."

Between 25 and 30 members attended the March 30 meeting of the **State College of Washington Branch** which was presided over by Haakon Bang, dean of the School of Pharmacy. The guest speaker was A. N. Sorenson, district field manager of Parke, Davis & Co., who discussed "The Requirements of a Retail Representative."

The **Wayne University Branch** met May 18 and elected the following officers for the 1954–1955 school year: Carl Engel, president; Ervin Galecki, vice-president; Al Chandler, treasurer; Marilyn Ternes, recording secretary; Janice Warner, corresponding secretary.

Officers elected for the coming year by the recently formed **South Dakota State College Branch** are: Ivan Madsen, president; Leon Pfotenhauer, vice-president; Mary Ann Peterson, secretary; Ron Harrison, treasurer.

Officers of the **Ohio State University Branch** for 1954–1955 will be: Kenneth Spoon, president; George Lake, vice-president; Faye Campbell, secretary; James Snyder, treasurer; Hillel Jaffee, membership chairman.

Marking the close of its activities for the school year, the **Drake University Branch** gave its annual spring picnic for members of the college on May 9 at Lake Ahquabi.

The **Columbia University Branch** has announced the results of its elections held on May 7 as follows: Mark Goldberg, president; Edward Elkowitz, vice-president; Melvin Wilner, treasurer; George Zografi, secretary.

New officers were installed on May 20 by the **University of North Carolina Branch.** They are: John Mills, president; Jerry Rhoades, vice-president; Freda Hobowsky, secretary; Ingram Jenkins, treasurer; Raymond Ammons, chief of Executive Committee.

Approximately 55 attended the annual banquet of the **Loyola University Branch,** held on April 13 at the New Orleans Airport. The officers of the new year, presented by the outgoing President, Robert Mayes, are: President, Merlin Allen; Vice-President, Kenneth Haydel; Recording Secretary, Marilyn Gennaro; Treasurer, Geraldine Biundo; Corresponding Secretary, Robert Douilhet; Historian, John W. Louivere.

Lenora Lawrence, newly elected secretary of the **University of Southern California Branch,** announces, in addition to her election, the elections of Robert Pullen as president, Wesley Johnson as vice-president, and Oscar Pallares, treasurer.

Jack Jennings has been elected president of the **University of Oklahoma Branch.** Other officers elected are as follows: John Ross, vice-president; Betty Powers, treasurer; Mary Kay McShane, secretary; Alton R. Cothran, sergeant at arms.

From the **Idaho State College Branch,** Corresponding Secretary Don Nelson reports that Ernest G. Rombough has been elected president, Walter Cook, vice-president, and R. E. Hanson, treasurer.

The following new officers have been elected at the **Alabama Polytechnic Institute Branch:** Bob Zarzaur, president; William Stutts, vice-president; Jo Frances Frassrand, secretary; Eugene McLemore, treasurer; George D. Elder, publicity chairman.

LOCAL BRANCHES

Bert Morgovsky has been elected president of the **Northern New Jersey Branch** of the A.PH.A. Other officers elected are Larry Pesa, vice-president; Michael Iannarone, secretary; and John L. Voigt, publicity director.

The following have been elected to office by the **Northern California Branch** of the A.PH.A.: Wilbur B. Holden, president; Felix Conte, vice-president; Marie B. Kuck, secretary; Stephen Dean, treasurer.

Elected for the 1954–1955 term by the **Western New York Branch** are: Rose Marie Lee, president; William Burckart, first vice-president; Sylvia S. Torre, second vice-president; Melvin Monteith, secretary; Clifton F. Lord, treasurer.

At its April meeting, the following officers were elected by the **Philadelphia Branch:** Martin Barr, president; Chester Poetsch, vice-president; William Fink, secretary, John Lynch, treasurer.

Ignatius J. Kaski has been elected president of the **Chicago Branch.** William Little and Paul F. Parker have been elected vice-president and secretary, respectively, and George Webster and Tom G. Crawford have been named delegates to the A.PH.A. House of Delegates.

The **St. Louis Branch** of the A.PH.A. met May 17 at the St. Louis College of Pharmacy and elected James F. Badgett president. Professor Frank L. Mercer was named vice-president and F. M. Rudi was re-elected secretary-treasurer.

The **City of Washington Branch** met in that city on May 19. The feature of the evening was a showing of the film, "Clinical Manifestations of Drug Addiction," producted at the NIMH Addiction Research Center.

here's why your patient gets

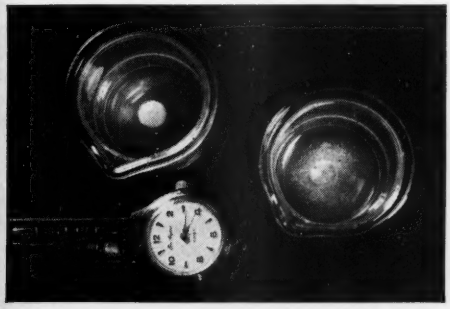
3:15—Disintegration Test begins in actual stomach fluids (pH 2.7). Beaker at left contains ordinary enteric-coated erythromycin. At right is new *Film Sealed* ERYTHROCIN Stearate (Erythromycin Stearate, Abbott).

Earlier Blood Levels *from*

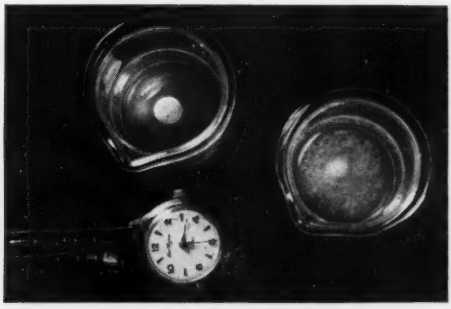
FILM SEALED* ERYTHROCIN

TRADE MARK

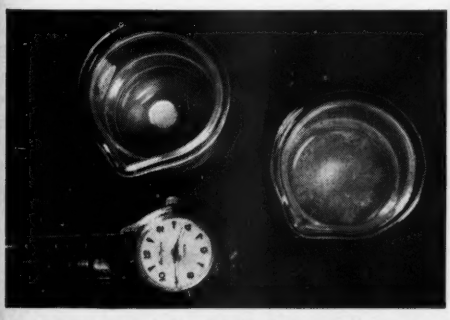
- **DISINTEGRATES FASTER THAN ENTERIC COATING**
- **HIGH BLOOD CONCENTRATIONS WITHIN 2 HOURS**



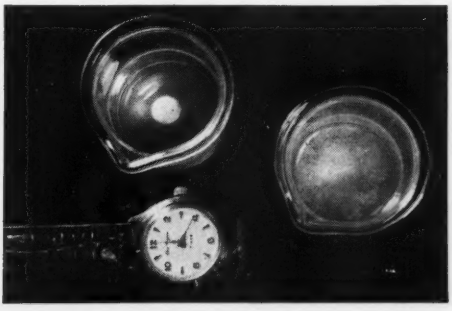
3:20—Five minutes later, *Film Sealed* coating has already started to disintegrate. The tissue-thin film actually begins to dissolve within 30 seconds after your patient swallows tablet.



3:30—*Film Sealing* is now completely dissolved. At this stage, ERYTHROCIN is ready to be absorbed, and ready to destroy sensitive cocci—even those resistant to most other antibiotics.



3:45—Now the *Film Sealed* tablet mushrooms out with all of the drug available for absorption. Note that enteric-coated tablet is still intact. Tests show that the new Stearate form definitely protects ERYTHROCIN against gastric acids.



4:00—Because of *Film Sealing* (marketed only by Abbott) the drug is released faster, absorbed sooner. In the body, effective ERYTHROCIN blood levels now appear *in less than 2 hours* (instead of 4-6 hours as before). Abbott

*pat. applied for

406150

"This is the ad your physicians are seeing on the new Film Sealed ERYTHROCIN."

BRIEFLY NOTED

COLLEGES

The Sixth Annual Honors Day program was held at the College of Pharmacy, **University of Texas,** on Saturday, April 3, 1954, and recognition was given, among others, to twenty-three recipients of awards and scholarships; eight were elected to honor societies; and twenty-six students who demonstrated superior scholarship by ranking in the upper three per cent of their class in the College of Pharmacy were announced.

F. Royce Franzoni, president of the AMERICAN PHARMACEUTICAL ASSOCIATION, addressed the student branch at the **University of California** on May 12. His discussion dealt with problems facing the modern pharmacist, including an interpretation of the laws that affect the practice of pharmacy in the modern retail pharmacy.

The second annual one-day Pharmacy Conference of the **University of Mississippi** was held April 15. The Conference is sponsored jointly by the Mississippi Pharmaceutical Association, the Mississippi Board of Pharmacy, and the University. Principal speakers were: Dr. C. L. Campbell, secretary-treasurer of the American Animal Health Association; David D. Stiles, director of Abbott Laboratories Market Development; Dr. Lewis Nobles, of the University's School of Pharmacy; and Dr. Robert P. Fischelis, secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Student members of *Lambda Kappa Sigma* sorority and *Kappa Psi* fraternity, **Rutgers University College of Pharmacy,** have held elections for the 1954–1955 college year. Newly elected officers of the sorority are: Theresa M. Hubka, president; John A. Turkus, vice-president; Mary P. Hayden, treasurer; Lois Herer, secretary; and Harriet Gabel, representative to the Interfraternity Council. Named to head Rutgers Kappa Psi chapter for the coming year were Martin Daffner, regent; George Comerci, vice-regent; Angelus Bellino, treasurer; Robert Calvo, secretary; Halsey K. Van Duyne, chaplain; John Lombardo, sergeant-at-arms; and George Lordi, historian.

Through the Breyer Ice Cream Co., a freshman scholarship in Pharmacy valued at $450 is available for the 1954–1955 session at the **Philadelphia College of Pharmacy and Science.** For further information, write The Registrar, Philadelphia College of Pharmacy and Science, 43rd St., Kingsessing and Woodland Aves., Philadelphia 4, Pa.

At the Spring Reunion Dinner of the Alumni of the College, held May 22, the long-standing mortgage on the College properties was burned.

Recent initiates to *Phi Delta Chi* at **Idaho State College of Pharmacy** include John Nohnson, Donald Klotz, Reuben Campos, Marlin Felton, Delton Christensen, Joe Scarcello, Andy Magnasco, John Stajcar, Wallace Nelson, George Econome, John Van Deusen, and Joe Korfantz. Leland Miller served as pledgemaster for the group.

Alpha Upsilon Chapter of *Rho Chi* held an initiation dinner April 6 at the Hotel Bannock. Paul Hoff, administrator of Bannock Memorial Hospital, was guest speaker. Initiates at the dinner were Ed Clark, Kern Lee, Mary Lemmon, Robert Petrobono, Russel Hanson, Clarence Tanake, Maurice Welch, Ralph Wheeler, and Robert Wilson.

Wm. T. Dooley, Jr., general chairman of the **St. Louis College of Pharmacy** Alumni Association Endowment Fund Campaign, has announced that $117,436 has so far been pledged.

The University of New Mexico College of Pharmacy was represented at the District Eight meeting at Tucson, Ariz., May 6–8, by Dean Elmon L. Cataline, chairman of the District Group, and Professors James McDavis and Hugh Ferguson.

Dedication of the Frank F. Law Memorial Laboratory at **Temple University** School of Pharmacy took place in the Dental-Pharmacy Auditorium May 6. Dr. Karl Bambach, vice-president and secretary of the American Drug Manufacturers Association, gave the address.

Rho Chi Chapter Established at Columbia

A chapter of *Rho Chi,* national honorary pharmaceutical society, was formally installed at **Columbia University College of Pharmacy** on May 24. Chartered as Beta Gamma, it is the 51st *Rho Chi* chapter to be established. Dr. Roy A. Bowers, national vice-president of *Rho Chi* and dean of the College of Pharmacy at Rutgers University, was the installing officer and Dean Emeritus Charles W. Ballard of Columbia University College of Pharmacy, who was the guest of honor, gave the first address to the chapter: "Recognition of Scholastic Achievement."

Dr. E. E. Leuallen responded in behalf of the twenty-seven undergraduate, graduate, and faculty charter members.

ASSOCIATIONS

An Executive Order designed to strengthen the conduct and administration of the scientific research and development programs of the various departments and agencies of the Federal Government was issued by President Eisenhower on March 17. In a covering statement, the President said in part:

"This Order will, for the first time, set in motion important steps leading to a thorough and continuing review of the status of the Federal Government's activities in science, and thus enable the Government, together with industry, higher education, and the scientific community to move forward with assurance toward the achievement of the Nation's goals."

The Order designated the **National Science Foundation** as the guiding body in the correlated scientific programs conducted by and under the auspices of Federal agencies.

The invitation of the Government of Mexico extended last year to the **World Health Organization** to hold its VIII annual assembly in 1955 in Mexico City has been approved by the VII World Health Assembly's Committee on Administration, Finance, and Legal Matters. The invitation is subject only to confirmation by the Assembly in plenary session.

The **VII World Health Assembly** has elected as president Dr. Joseph Nagbe Togba, director of Public Health and Sanitation of Liberia.

R. Raymond Riccardi, president of the **New Jersey Pharmaceutical Association,** has been elected general chairman of the 1955 Rutgers Pharmaceutical Conference by the planning committee for the annual event.

The senior class of the University of Arizona College of Pharmacy attended the annual banquet of the **Arizona Pharmaceutical Association,** held May 5, in celebration of "Newell Stewart Day" at the close of the Association's convention in Tucson. The students were thus given an opportunity to join in honoring their lecturer in pharmaceutical jurisprudence on his election to the presidency of the A.PH.A.

Medicinal Chemistry Symposium

The Division of Medicinal Chemistry of the American Chemical Society conducted a "Medicinal Chemistry Symposium" June 17, 18, and 19 in Syracuse, N. Y. Papers were presented by outstanding investigators in the following fields: Gastric Stimulators and Inhibitors, Atherosclerosis, Alkaloids, and Polypeptides. The program included a panel discussion on "Mechanism of Drug Action."

AT RANDOM

H. B. Burns, president of the U. S. Vitamin Corporation, Casimir-Funk Laboratories, the Arlington Chemical Co., and eleven other subsidiaries, has accepted the chairmanship of the Drug Committee of the Salvation Army's 1954 appeal in New York City.

Johnson & Johnson President **George F. Smith,** a U. S. delegate to the Second International Conference of Manufacturers, has been named chairman of the international sessions dealing with "Human Relations Within the Enterprise." **J. P. Spang, Jr.,** president of the Gillette Company, will preside at the sessions devoted to "Raising of Standards of Living and Stability of Employment." The Conference is scheduled for May 15–25 in Paris.

Percy C. Magnus, president, Magnus, Mabee and Reynard, Inc., has received the Ralph Horgan traffic Safety Award, an inscribed gold wrist watch, in recognition of his outstanding contributions to traffic safety as president of the Citizens Traffic Safety Board of the City of New York.

A testimonial dinner in honor of **Dr. A. Bertram Lemon,** dean of the University of Buffalo School of Pharmacy for the past 18 years, was held at the Hotel Statler, Buffalo, N. Y., on April 25. Dr. Lemon, who is a member of the A.PH.A., is retiring from his administrative duties this year.

The first **National Retail Industry Show** to serve the equipment, modernization, and construction needs of the nation's nearly two million retail stores—department stores, chains and independents—will be held January 7 through 11, 1955, at Madison Square Garden, New York, N. Y.

The Lilly Review and *Tile and Till* have won two of the twelve first-place awards made by the International Council of Industrial Editors in its 1953 contest.

Ford Fellowship Granted Dr. Osborne

Dr. George E. Osborne, associate professor of pharmacy, University of Utah School of Pharmacy, has received a Ford Foundation fellowship for further study in pharmacy for the academic year 1954–55. Study will be pursued at the University of Wisconsin in areas of history of science, history of medicine, and history of pharmacy.

Only 200–250 fellowships were awarded from a field of applications numbering 1,600. The Foundation's aim is to make better teachers of those already in the field and to encourage study of related areas and comparative methods of presentation of material historical backgrounds of the professors' fields of specialization.

Poisoning

• • • • • • • • • • *from page 364*

Kerosene—Drank kerosene from can when grandmother, who was painting, left the room.

Sodium hypochlorite—Ingested bleaching solution stored in kitchen cabinet.

Laundry ink—Laundry marking ink contained phenol and silver salt.

Carbon tetrachloride (cleaning fluid); ammonia solution; alkali (caustic toilet cleaner); turpentine; benzene (paint remover); methyl bromide (fire extinguisher fumes killed six boys in cabin); and other materials that are accepted as commonplace items by adults are included in the tabulation.

The general precautionary statements that are printed on labels for adults to read might in all cases be followed by the admonition: "*Store Safely Away from Children!*"

A statement from the U. S. Department of Health, Education, and Welfare, FDA, on April 14, 1954, contained the following: "To minimize accidental poisonings by oil of wintergreen preparations, . . . drug products containing more than 5 per cent of this ingredient will be considered as misbranded unless their labels warn that use contrary to directions may be dangerous, and that the article should be kept out of reach of children."

It has been suggested that poison labels should bear a luminescent skull and crossbones. A metal container, known as the Kidipruf, for pills, tablets, or capsules, is marketed in England. The container is opened by pressing on the cap, and it is claimed that a young child cannot open it.

The pharmacist is in a strategic position to caution those who purchase toxic substances or who obtain prescriptions with ingredients that would be toxic to a child. The consideration of the potency should not be based upon the prescribed dose *but upon the amount present in the entire volume, number, or weight,* depending on the dosage form dispensed. This is a service that no one else is as well qualified as the pharmacist to give to the public. It can stimulate an awareness in the public of the special safety factor that is available when making purchases at the pharmacy.

But most important, the pharmacist's advice regarding proper usage, storage, and discarding of toxic materials will help save the lives of children.

REFERENCES

(1) Arena, J. M., *Postgraduate Med.*, 11, 245(1952).
(2) Alway, R. H., *Postgraduate Med.*, 11, 239(1952).
(3) Conley, B. E., "Accidental Poisoning in Children," Committee on Pesticides, *American Medical Association*, Chicago, Ill., 1953.

ADVERTISING INDEX

Abbott Laboratories
Erythrocin 380, 381
Optilets ..... inside front cover
American Druggists' Fire Insurance Co. 370
Ames Company, Inc. (Clinitest) 322
Chesebrough Mfg. Co. (Vaseline Sterile Petrolatum Gauze Dressings) 330
Hynson, Westcott & Dunning, Inc. (Lutrexin Tablets) ..... outside back cover
Lakeside Laboratories, Inc. (Dactil) ..... inside back cover
Eli Lilly and Company (NPH Iletin) 324
S. E. Massengill Company (Massengill Prescription Specialties) 365
Merck & Company, Inc. (Rx Bottle Sets) .. 372, 373
Parke, Davis & Company (Amphedase) 341
Philadelphia College of Pharmacy and Science 335
Reed & Carnrick (Lullamin Drops) 371
A. H. Robins Company (Mephate) 321
J. B. Roerig and Company (Tetracyn) 369
Smith-Dorsey, Division, The Wander Co. (Crystoserpine) 333
U. S. Vitamin Corp. (C.V.P.) 329
Warner-Chilcott Laboratories (Peritrate) 367
Winthrop-Stearns Inc. (NTZ Nasal Spray) ... 327

MONTHLY DRUG INDEX

Antirabies Serum 338
ASF Capsules 338
Atropine Sulfate Injection 338
Aureomycin Calcium Oral Drops (Vet.) 338
Beta-Methischol Syrup 336
BSP Liquid 338
Buro-Sol Powder "Doak" Concentrate 338
Butodex Tablets 338
Chloromycetin for Solution—Intravenous 338
Crystoserpine Tablets 336
Dactil Capsules 336
Dynolen Capsules 336
Fasigyn Injection 336
Furadantin Pediatric Suspension 336
Gallogen Tablets 336
Heparinate Solution 337
Hesperinate-C Capsules 337
Indon Tablets 337
Neostene Injection 337
Parenzyme Intramuscular 337
Rau-Vertin Tablets 337
Skopolate—Tablets, D.A. Tablets, P.A.M. Capsules, and Parenteral 337
Teldrin Spansule 337
Thorazine Tablets and Ampul Solution for Injection 338

80, 381
t cover
. 370
. 322
o-
. 330
n
k cover
.
k cover
. 324
e-
. 365
372, 373
. 341
ce 335
. 371
. 321
. 369
o.
. 333
. 329
. 367
. 327

X

. 338
. 338
. 338
. 338
. 336
. 338
. 338
. 338
. 338
. 336
. 336
. 336
. 336
. 336
. 336
. 337
. 337
. 337
. 337
. 337
. 337
M.
. 337
. 337
for
. 338